SDMS Document ID
2030752

DRAFT

Kootenai Development Company

Flyway Property

Sampling and Analysis Plan

April 2004 (draft revision 1)

Prepared by:

Remedium Group, Inc.
A Subsidiary of W. R. Grace & Co.
6401 Poplar Ave., Suite 301
Memphis, TN 38119-4840

APPENDIX C

SAMPLING AND ANALYSIS PLAN

DRAFT

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Kootenai Development Company

Flyway Property

Sampling and Analysis Plan

March 2004 (draft revision 1)

Prepared by: _____
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Koch Environmental Health, Inc.

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EMSL
Analytical Laboratory

Approved by: _____
Jim Christiansen
EPA Region VIII Remedial Project Manager

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April 26, 2004

Ref:8EPR-SR

Mr. Robert Marriam
6401 Poplar Avenue, Suite 301
Memphis, TN 38119-4840

Dear Bob:

EPA has reviewed the revised draft Sampling and Analysis Plan and Quality Assurance Project Plan (Remedium, April 2004). The documents were much improved. We have a few additional comments on the SAP, which should also be addressed in the QAPP as appropriate:

1. Section 1.1. What does the sentence "The Riverbank contaminated soil has already been addressed" refer to? While EPA has completed some work at the Flyway, and we have provided maps to W.R. Grace showing exactly which grids we did clean up, we did not specifically address all riverbank soils. There are areas that are seasonally under water that we did not address, and which are not part of the 53 grids W.R. Grace will address.

2. Section 1.2 and Figure 1-1. Please include in Figure 1-1 and Section 1.2 a description of EPA's role in the project. Generally, EPA (me or my representatives) will work closely with W.R. Grace on all aspects of the project and are responsible for ensuring the work meets the requirements set forth in the approved legal and technical documents. Similarly, in Section 3.3.1, please specify that any changes to the sampling strategy must also be approved by EPA.

3. Section 3.2 and Section 3.3. Table 3-2. In my comments on the initial draft SAP, I provided the following thoughts on the issue of TEM and PCM perimeter/ambient samples:

Air Sample Analysis. The HASP, QAPP, & SAP specify the use of TEM and PCM for background, perimeter, and personal samples. EPA generally uses this same approach, using PCM because of it's cost effectiveness and TEM to provide lower detection limits and definitive Libby asbestos identification. However, I must emphasize that TEM should be used for all types of air samples at some specified rate because it provides higher quality data. This is especially true for perimeter samples which provide the basis for EPA and W.R. Grace stating that surrounding properties were not impacted by the work - the SAP appears to call for only PCM

analysis of perimeter samples, though it does provide the possibility of TEM analysis. The SAP/QAPP should provide more detail on which method will be used and at what frequency.

In the current draft SAP, Section 3.2 calls for PCM analysis of ambient/perimeter air samples, and Figure 3.1 shows four locations for perimeter samples to be collected. The document also calls for background ambient samples to be collected before work begins. Only samples that exceed the OSHA PEL of .1 f/cc are slated for TEM analysis. While I am flexible as to your sampling strategy, I again must emphasize that TEM is preferable for perimeter samples and must at least be used at some specified rate, rather than just as confirmation for PCM exceedances. I must also stress that an action level of .1 f/cc for perimeter samples is unacceptable - our goal is to state to the public with confidence that almost no asbestos fibers are migrating from the Site during cleanup.

EPA has refined our approach for ambient/perimeter samples around work sites and I suggest W.R. Grace adopt a similar approach. This approach limits the number of samples required while exclusively using TEM for perimeter sample analysis. EPA's current protocol in Libby generally calls for:

- No "background" samples. Background ambient air samples have consistently been "non-detect," so in general we no longer collect background samples. To determine if engineering controls are working effectively, perimeter samples collected during work are evaluated against a stringent numerical standard set for TEM AHERA rather than against a level established by background sampling. This approach reduces the amount of samples required and associated analysis costs. W.R. Grace is free to collect background air samples if you wish, but I don't believe it will provide much meaningful data.
- Fewer perimeter samples. While our Draft Final Response Action Work Plan for Residential/Commercial Cleanup (provided to W.R. Grace late last year) specifies daily collection of four perimeter samples around cleanups, we have recently reduced this to only one - generally in the downwind direction. Again, evaluation of our past data showed engineering controls were performing well, and perimeter samples were generally "non-detect" by TEM. This approach reduces the amount of samples required and associated analysis costs. EPA suggests you reduce the required number of perimeter samples from four to two (the Flyway is larger and will involve much more disturbance than residential cleanups, so one is probably not appropriate) and place these samples in varied locations around the work site based on wind direction and protection of adjacent properties. Please specify in Section 3.3 and Section 3.3.1 that EPA representatives will assist W.R. Grace in selecting locations for these samples and will also collect our own samples as necessary. This will ensure the public understands that EPA have a direct role in ensuring asbestos does not migrate from the Site during work.
- All perimeter air samples to be analyzed using TEM by the AHERA Method. We no longer use any PCM analysis for perimeter sampling. As you are aware, while PCM analysis has some benefits, it is prone to false positives because it does not differentiate asbestos fibers from non-asbestos fibers. It also can have a relatively high detection limit. Under our approach, perimeter air samples are evaluated against a raw structure count standard for AHERA TEM Method (which specifies a detection limit of .005 f/cc),

and are not compared to the OSHA PEL (.1 f/cc). If, during the AHERA analysis, at least two fibers are observed in a perimeter sample, this will automatically trigger a review of work practices and engineering controls - not necessarily a shut down in work. While not exact, a raw structure count of two on the AHERA method translates to an airborne concentration on the order .01 f/cc - roughly a tenth of the OSHA PEL. Observance of one fiber, which would correspond to an airborne concentration on the order of .005 f/cc, is considered ok.

We suggest that you modify the document similarly. This is a bit more detail than I provided in my first comment letter but should eliminate any confusion as to what we are looking for. Using this approach, the reduction in the number of samples required to be collected and analyzed generally offsets the slightly increased cost of analysis using TEM, and data is more meaningful and of higher quality (e.g no false positives from PCM, better detection limits and analytical certainty with TEM, a wider range of fibers counted using AHERA counting rules). We have had no difficulty meeting this standard during residential cleanups when engineering controls are employed properly.

4. There seems to be some confusion on which TEM method you will use for analysis of air samples (e.g. Table 3-2 and other locations say NIOSH 7402, while Section 3.3.3 specifies the AHERA TEM Method). We recommend the AHERA TEM Method, which is somewhat different than the NIOSH 7402 method, and is what we are using for the vast majority of TEM air samples. Using NIOSH 7402 is acceptable, if the resulting data is adjusted to be comparable to data obtained using the AHERA TEM Method (e.g. adjusted for different counting rules and detection limits).

5. Section 3.3.2 and all other subsequent sections. Please coordinate with the Volpe Center (Mark Raney) on the appropriate sample prefix that will apply to the Flyway project so we can ensure that data is tracked and entered appropriately in our database.

6. Section 3.3.5. Rotometers should be calibrated at the beginning and end of each sampling effort, rather than quarterly as this section suggests. Other sections specify the correct approach. Section 3.3.5 should be revised.

7. Section 5.3.1. This section references NIOSH 9002 appropriately, but we recommend the method be referenced on the chain of custody forms as "Modified NIOSH 9002.". We have modified how our labs perform NIOSH 9002. Basically, they are using "standards" developed by USGS to aid in quantification of Libby asbestos. We feel this makes the method more accurate when used with Libby soils. The modification should be that the labs use ISTM2 reference materials to qualitatively identify any Libby asbestos in the samples. I can explain this in detail if required.

8. Section 8. Just for clarification, EPA will also require copies of all field sample data sheets and all modification forms. We also recommend that the air sample database be generated electronically through air data entry spreadsheets provided by the Volpe Center, similar to soil analysis.

9. Appendix 1.

- Request for Modification-FFO. The numbering schemes for this form must be changed to: FFO-XXX to indicate that the changes/modifications reflect actions taken at the Flyway only. Note that a laboratory Modification Form must be prepared for any changes made to the laboratory analysis efforts.
- Chain of Custody Form. One other change should be made to this form. Reference the modification form that specifies the use of ISTM2 reference materials in conjunction with the NIOSH 9002 Method.

During work, our field representatives will work with you on data collection and tracking issues as well.

10. Appendix 3. The CSSCP SOP indicates that equipment blanks will be collected as part of QC measures. This translates to a need for water samples. Rather than including additional information in the SAP and QAPP for this, I recommend this section be revised to state that EPA will analyze the required water samples to support this QC item. We already have the appropriate documentation and procedures in place.

11. Appendix 8. Alconox and asbestos-free water must be used every time decontamination is performed on field sampling equipment.

Following these changes, I expect the SAP and QAPP can be put forth for public review in Libby. We still must review a revised work plan for the cleanup. If you have any questions, please contact me directly at (303) 312-6748.

Sincerely,

Jim Christiansen
Remedial Project Manager

Section 1
Introduction

This Sampling and Analysis Plan (SAP) addresses the proposed work efforts to be implemented at the Flyway site, Libby, Montana.

The project includes removal of asbestos contaminated soil at the Flyway site, located immediately south of the former screening plant (operable unit 02).

1.1 Site Area

The site area to be addressed as part of this SAP consists of:

- The Impacted fifty-three (53) grid area.

Soil from the impacted fifty-three (53) grid area will be examined and excavated (or scrapped) to acceptable levels as required, and confirmatory soil samples will be collected.

The Riverbank contaminated soil has already been addressed. No further work is proposed in this area.

Based on EPA's composite soil sample data, no PCB contamination was detected beneath the transformer area (near the abandoned pump house); therefore, no sampling and/or remedial activities are proposed for the soil in this area.

1.2 Project Management

The project management team will include:

Project Coordinator	-	Robert R. Marriam (Remedium Group, Inc.)
Alternate Project Coordinator	-	Robert J. Medler (Remedium Group, Inc.)
Project Manager	-	Alan R. Stringer (W. R. Grace & Co.)

Sample Coordinator and Air Monitoring Manager	-	Patrick McGurren (Koch Environmental Health, Inc.)
Air Monitoring Manager	-	Patrick McGurren
Project Quality Assurance Coordinator	-	David Tucker Remedium Group, Inc.
Health and Safety Officer	-	Thomas Koch, CIH (Koch Environmental Health, Inc.)
Excavation and Equipment Contractor	-	Mike Chapman (Mike Chapman Enterprises)

See Figure 1-1 for a project management organization chart.

1.3 Objectives

The sampling and analysis plan is designed to insure that all phases of the project are conducted in such a manner as to protect human health and the environment. It is recognized that movement of soil during excavation must be closely controlled and monitored to avoid excursions from the site, which might result in a health threat to the workers or to offsite locations. In addition to the special steps taken to control dust during the soil removal activities in the fifty-three (53) grid area, sampling will be conducted to confirm that the ambient air has not been impacted.

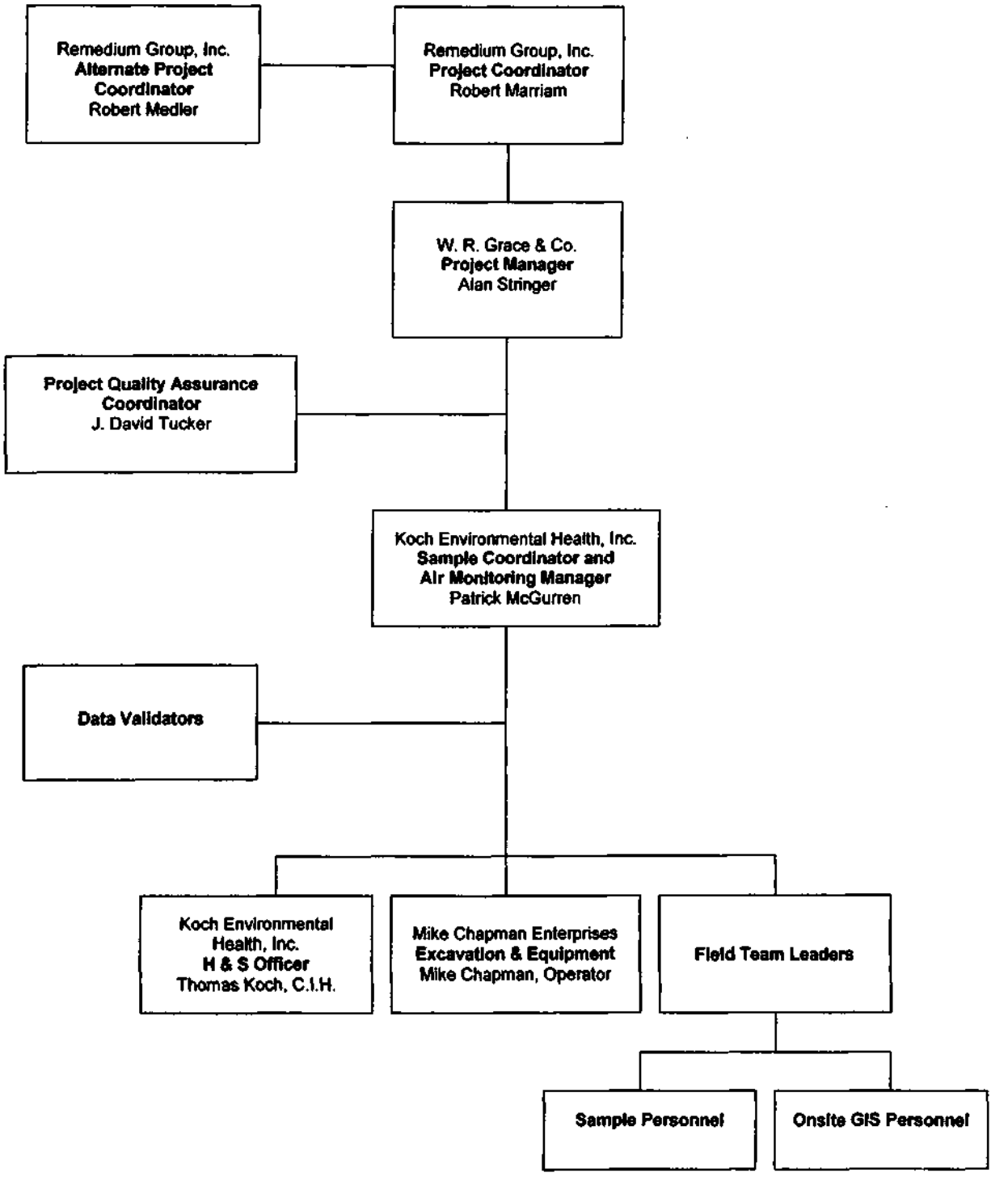
In general, three (3) types of sampling will be conducted. All samples, whether air or soil, will be targeted to the detection of asbestos.

Air sampling will be conducted to evaluate the air quality at the perimeter (exclusion zone) of the site and in the workers' breathing zone.

The soil samples will be of a confirmatory nature only and will be used to establish that the cleanup standards have been met. The types of sampling to be conducted are listed below:

Ambient Air Monitoring – Ambient air monitoring will be conducted around the excavation activities to determine the quality of the ambient air.

FIGURE 1-1
PROJECT MANAGEMENT ORGANIZATION CHART



Personal Air Monitoring – Personal air monitoring will be conducted of the personnel conducting the soil excavation activities and performing the confirmatory soil sample activities.

Soil Confirmation Sampling – Final confirmation soil sampling will be conducted to ensure that the quality of final soil conditions meet the cleanup standards as specified in Section 5.

Section 2
Site Background

Information included in this section was obtained during previous investigations at the Flyway site. Figure 2-1 shows the General Locus Plan of the Libby, Montana area. Figure 2-2 shows the location of the Flyway site in relation to the vermiculite mine site on the U.S. Geology Survey (USGS) quadrangle map.

2.1 Current Site Usage

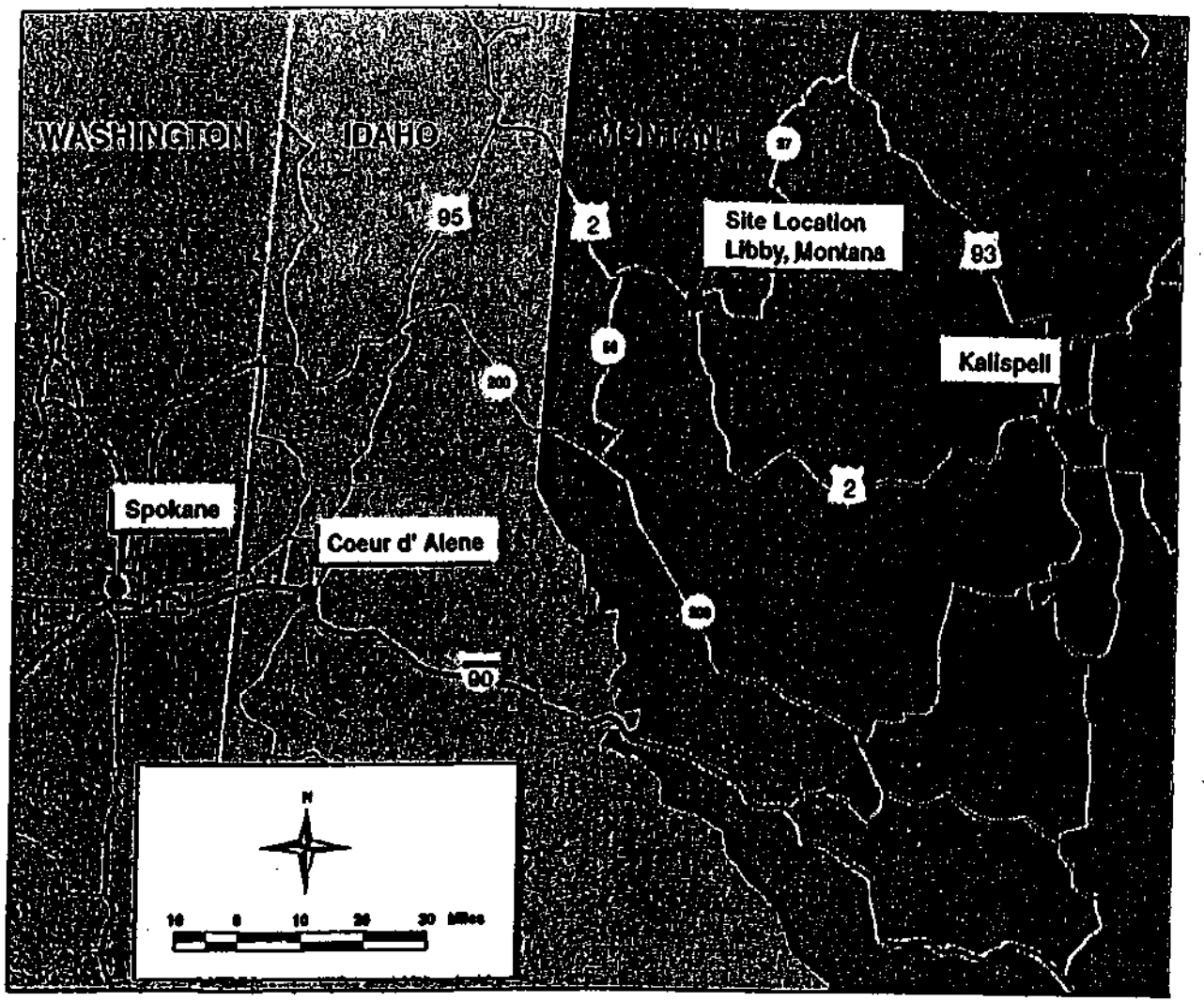
The site is currently vacant, undeveloped land consisting of meadow, sparsely wooded areas, and crushed stone and gravel roadways. An abandoned pump house is located on the property, close to the Kootenai River.

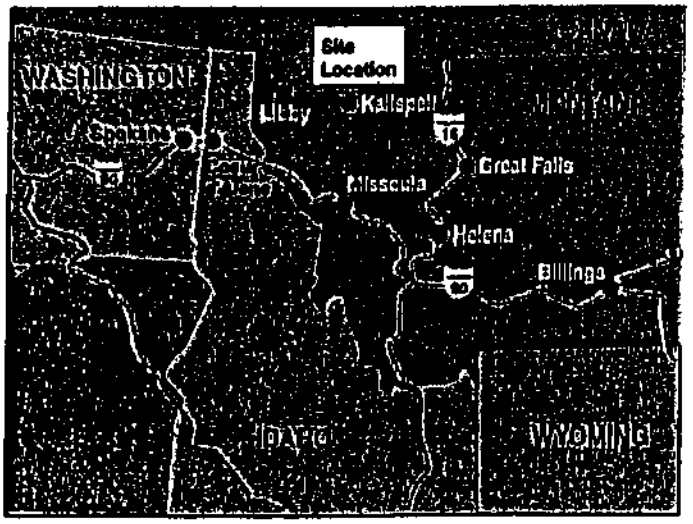
2.2 Site Area (Acreage)

Total site acreage includes the Flyway site, which contains a large open area, an abandoned pump house, and gravel and crushed stone roads. The Flyway site contains approximately 19-acres, located on the northeastern side of the Kootenai River, approximately 4.5 miles northeast of Libby, Montana. Highway 37 runs along the northeastern boundary of the site. The overall dimensions of the site are approximately 690+/- feet on the north; 1,495 +/- feet on the east along Highway 37; approximately 614 +/- feet on the south; and 1,910 +/- feet on the west along the Kootenai River.

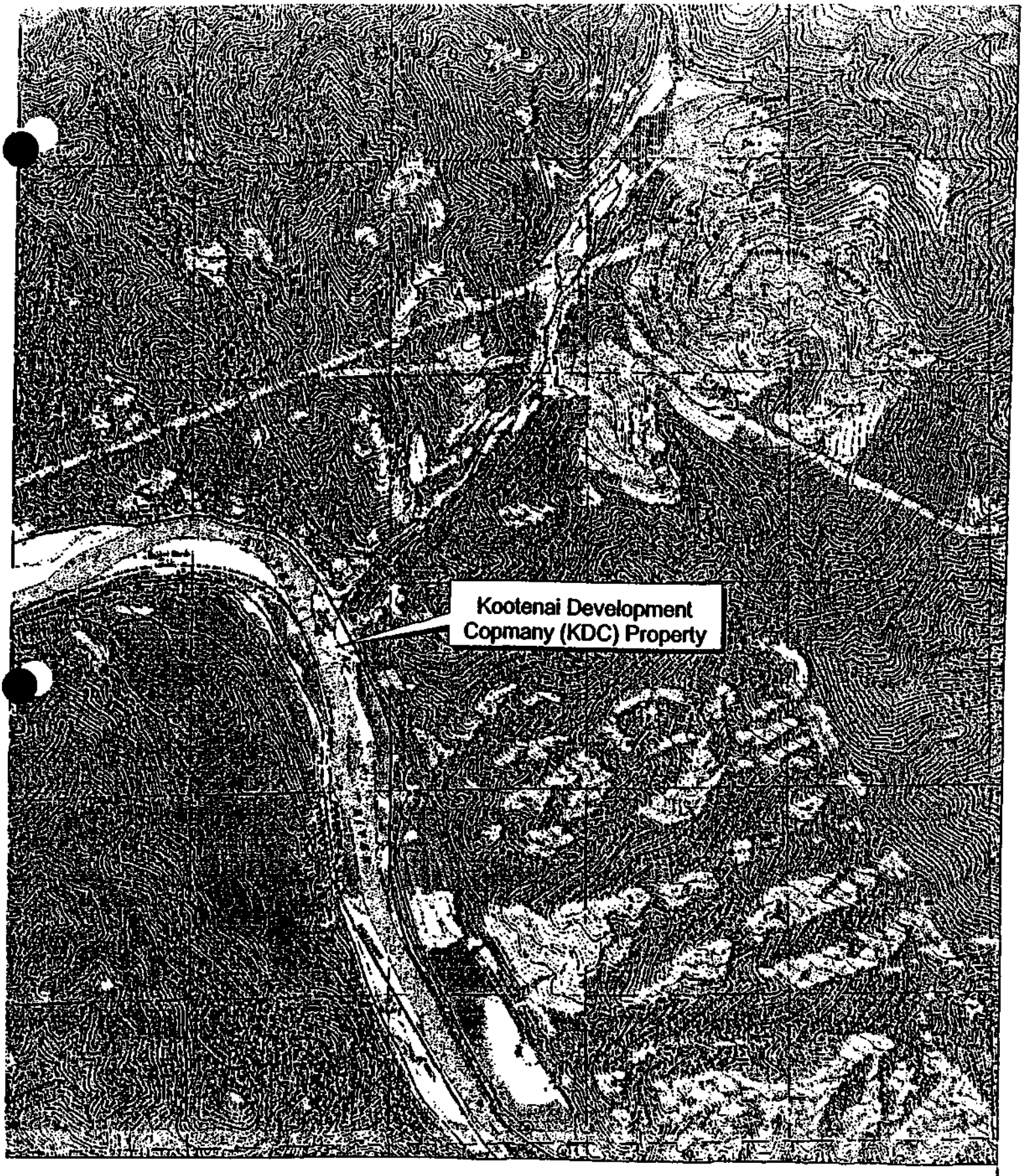
2.3 General Site Condition

The Flyway property is accessed through a gated entrance off Highway 37. The east-northeastern side of the property, along Highway 37, has been fenced by EPA. The property just north of the Flyway site has also been fenced by EPA. Access to the interior of the Flyway site is gained from one of three (3) gravel roads located off of Highway 37 to a network of gravel cart paths (roads). These gravel roads meander





Remedium Group, Inc.
Figure 2-1
Site Locus Plan
Libby, Montana



N

1000 0 1000 Feet

Remedium Group, Inc.
Figure 2-2
Site Location Plan
Libby, Montana

through the property and connect back to Highway 37. The unimproved roads are in fair condition. Access to the site appears to be adequate to support future removal activities. Figure 2-3 is a reduced copy of the topography and general layout of this site.

2.4 Soil Conditions

Soil conditions observed during preliminary investigations reveal that site soils consist of medium grained sand, cobbles (6-inch and minus) and boulders. Topsoil at the site consists of sandy loam containing some silt and clay.

2.5 Existing Vegetation

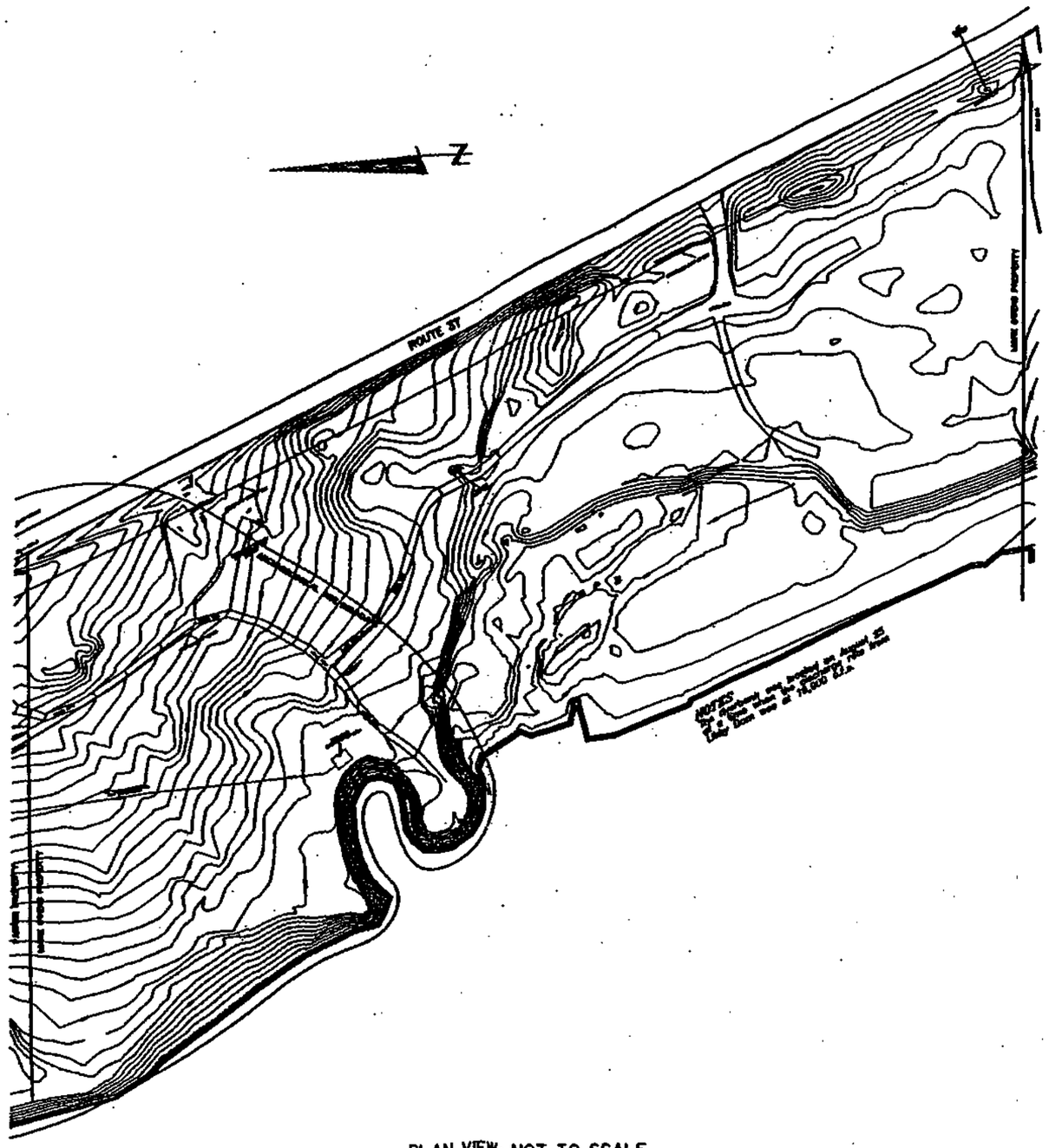
Existing vegetation consists of grass, and small to medium growth trees of various types and ages.

2.6 Surrounding Properties

The property lies between Highway 37 located on the northeastern side of the Flyway site and the Kootenai River located on the western side of the Flyway site. The former Screening Plant (Operable Unit 02) is situated to the north of the Flyway site. Adjacent to the southern side of the Flyway site are occupied residential buildings.

2.7 Cultural Resource Survey

Archaeological Site 24LN1045 was first determined to be eligible for the National Register of Historic Places by the Corps of Engineers (COE) on December 29, 1978. Tests on this site in 1978 and in 1993 through 1994 determined that it contained significant archaeological information. An archaeological survey was conducted on the property in 2000. Recovered artifacts are currently being held by the archaeologist. Figure 2-4 shows 1994 information taken from the Montana Historical Society files, relative to the location of Archaeological Site 24LN1045 and an exposed artifact area. It



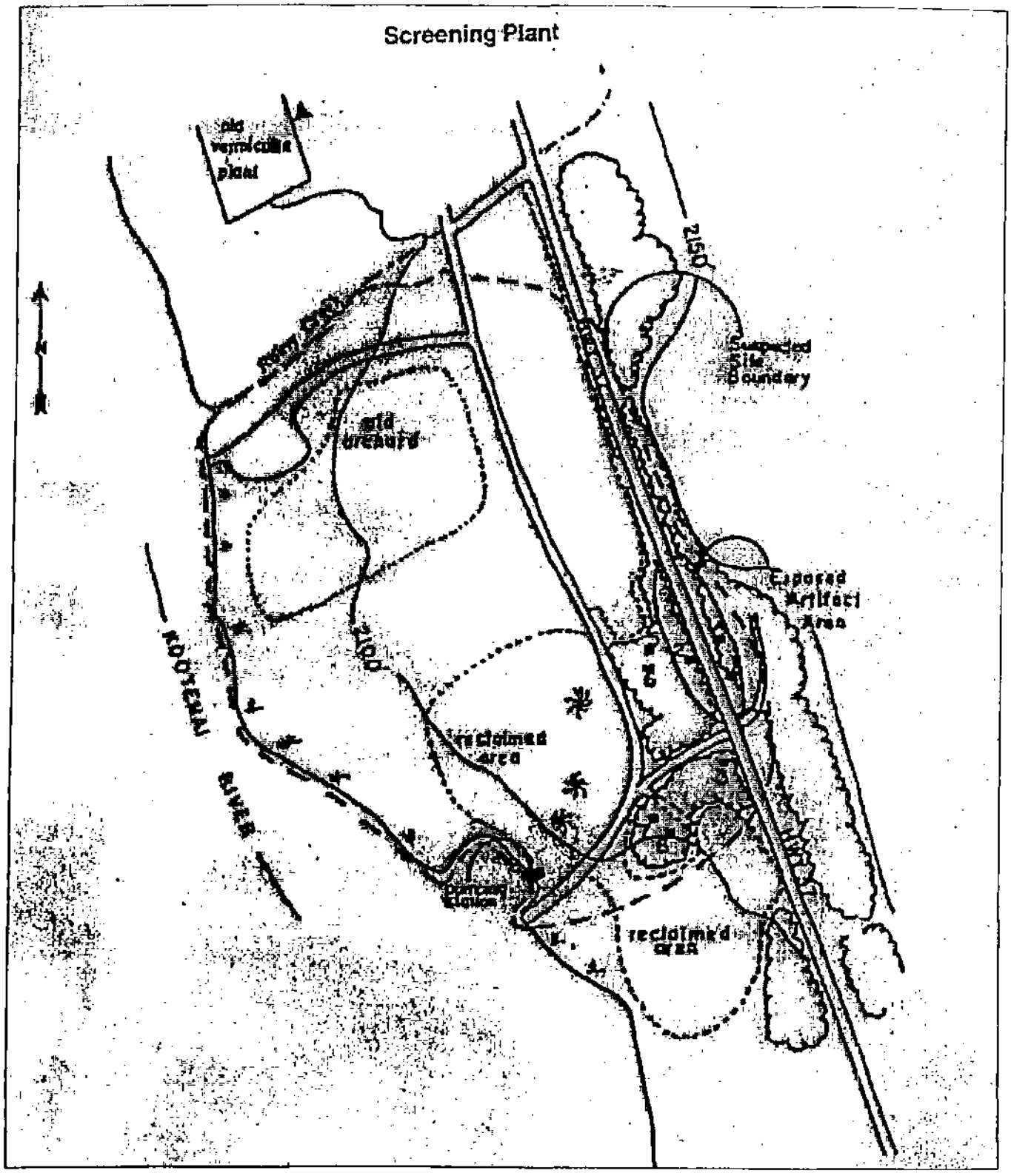
SURVEY DATA FROM J.R.S.SURVEYING INC.
TOPOGRAPHIC SURVEY PLAN

PLAN VIEW: NOT TO SCALE

KOOTENAI DEVELOPMENT COMPANY
FLYWAY PROPERTY
LIBBY, MONTANA

General Site Layout

FIGURE 2-3



Remedium Group, Inc.
Figure 2-4
Source: Montana Historical Society
1/6/94 Sketch Map for Archaeological Site
24LN1045

is understood that this survey has been completed and no further action is required on the part of W. R. Grace & Co.

Section 3
Ambient Air Monitoring Program, Rationale, and Locations

This section describes the overall strategy, sampling method, location, and rationale for the ambient air monitoring program.

3.1 Sampling Strategy

Ambient air monitoring will be conducted to assure that excavation work activities does not cause asbestos excursion beyond the exclusion zone.

3.2 Sampling Methods

The quality of the ambient air surrounding the Flyway site will be measured by passing a known quantity of air over a special filter, which traps and retains any fibers or other particles. The counting of these fibers, related back to the volume of air, will provide an accurate indication of the air quality to the project management. The analytical method to be used in this determination is NIOSH Method 7400, entitled *Asbestos and Other Fibers by PCM* (Revision 3 – Dated 05/15/89). This method, also known as Phase Contrast Microscopy (PCM), has an accuracy of 0.04 to 0.1 fibers/cubic centimeter (cc), depending on the volume of air used. The procedure, however, cannot distinguish between asbestos fibers and other fibers. The OSHA (Occupational Safety and Health Administration) standard for allowable asbestos fibers in the air is 0.1 fiber/cc. If the filter count meets or exceeds the OSHA allowable fiber count, the sample will be analyzed using an even more precise method, which can identify any asbestos fibers.

This method is called Transmission Electron Microscopy (TEM), and the fibers are counted using the AHERA (Asbestos Hazard Energizing Response Act) rule. Using an electron microscope, the fibers can be accurately identified as to the type of asbestos

and the number of fibers present on a representative portion of the filter. The method to be used is NIOSH Method 7402, entitled *Asbestos by TEM* (Issue 2, Dated 08/15/94).

3.3 Ambient Air Monitoring Sampling

Ambient air monitoring will be conducted around the exclusion zone. Prior to work beginning, background air samples will be collected. These will be used as a base reference point. Air sampling will also be conducted during soil removal activities and during soil confirmatory sampling activities. The number and location of the ambient air monitor stations will be determined by field personnel; however, a minimum of four (4) air monitoring stations is anticipated and will be used for both the background and ambient air sampling. To assure that the air monitoring stations are properly located, the wind direction and working zones will be taken into consideration.

The air monitoring will be conducted by Koch Environmental Health, Inc. (KEH) personnel. KEH will conduct all of the air monitoring, using personnel trained and certified in accordance with the requirements of the EPA (AHERA) and the State of Montana with respect to Asbestos Professionals.

See Figure 3-1 for the Approximate Location of Air Sampling Points Around Exclusion Zone. The location of the exclusion zone will change as the areas of remediation change.

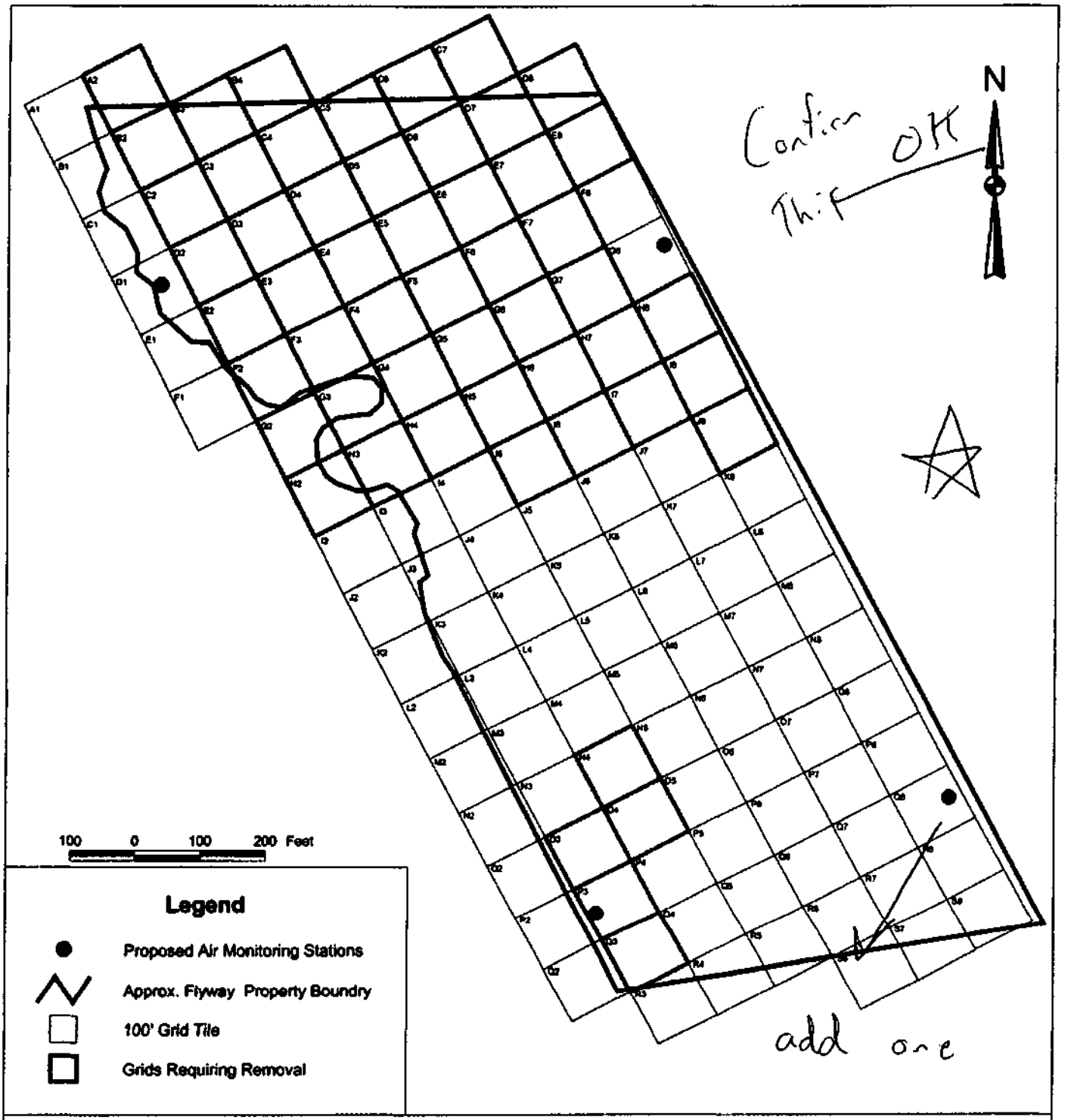


FIGURE 3-1
FLYWAY PROPERTY - LIBBY,MONTANA
APPROXIMATE LOCATION OF
AIR SAMPLING POINTS
AROUND EXCLUSION ZONE

Remedium Group Inc.

Data Source - Plan by CDM
Entitled " Libby, Montana Figure A-2-2 "

Plan Prepared By:
Hayes & Associates
Woburn, Massachusetts

3.3.1 Sample Collection

Phase Contract Microscopy (PCM) samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm^2. All filters used by KEH are pre-assembled by the manufacturer in three-stage, conductive sampling cassettes with extension cowls. Asbestos removal is a dynamic process and may necessitate altering sampling strategies regarding the numbers, locations, and analyses (e.g., PCM and TEM) of samples collected in and around each work area. Any changes to the sampling strategies will be coordinated through the Sample Coordinator, Air Monitoring Manager, and the Project Manager.

Depending upon weather conditions, high volume air samples will be collected at flow rates between 5.0 and 10.0 liters per minute (L/m) for PCM and TEM sampling. The Sample Coordinator and Air Monitoring Manager will use professional judgment and expertise in determining sample flow rates and locations based upon project conditions. Flow rates will be recorded at the beginning and at the end of each sampling period utilizing an airflow rotameter calibrated against a primary flow calibration instrument (DryCal DC Lite # DCL739). Start times and stop times will be recorded for all sampling periods. The Sample Coordinator and Air Monitoring Manager will maintain a primary flow calibration instrument onsite at all times during this project and will maintain calibration records onsite.

3.3.2 Ambient Air Sample Handling and Identification

This section provides a brief summary of the ambient air sample handling procedures and field custody procedures.

In general, a unique alphanumeric code will identify each sample collected during the sampling events. The coding system will provide a tracking record to allow retrieval

of information about a particular sample and to ensure that each sample is uniquely identified. Sample numbers will correlate with locations to be sampled. The sample locations and numbers will be identified in the field logbooks.

Ambient air samples will be labeled with index identification numbers supplied and maintained by the sample coordinator.

See Appendix 1 for a copy of the Request for Modification Form, Chain-of Custody Form, and Libby Field Sample Data Sheet (FSDS) for Stationary Air monitoring.

3.3.3 Laboratory Analysis

Analysis of all background and ambient air samples will be analyzed on site by KEH using the PCM method (NIOSH 7400), and the TEM method analysis (AHERA TEM) will be taken to EMSL in Libby for analysis.

PCM Air Analysis - NIOSH 7400 TEM Air Analysis - AHERA TEM

3.3.4 CIH Review and Sign-Off

Upon completion of the air sampling, a final technical report will be generated that describes the project activities, air sample results, and visual inspection data.

3.3.5 Equipment

KEH maintains a complete inventory of air sampling pumps, calibration equipment, and sampling media necessary to conduct the work. All of the rotameters are calibrated quarterly against a primary flow calibration standard (Dry Cal DC Lite). An inventory of up to 20 high-volume pumps and 10-15 low-volume (i.e., battery) pumps will be maintained onsite to support air monitoring requirements for the project.

KEH's battery pumps have a typical run-discharge cycle of approximately 16 hours for full shift coverage when work area conditions do not allow for electric pumps. Multiple battery pumps and battery packs will be maintained on site to adequately monitor the project on a daily basis and to allow for charge-discharge cycles, pump failures, and backup capabilities.

3.3.6 Quality Assurance/Quality Control (QA/QC) Air Samples

A number of QA/QC ambient air samples will be conducted. Every 20th air sample will be reanalyzed for any deviations by KEH.

EPA will require duplicate/replicate samples submitted for judgment analysis. Replicate air samples (a 2nd pump setup alongside the 1st pump) will be submitted to EPA. The frequency of the air samples is identified in Table 3-1.

Table 3-1 – Summary of Ambient Air Monitoring, EPA's Frequency Goals

Data Quality Objections[a]	Sample Description	Frequency
RA Monitoring	Ambient (perimeter) air monitoring	1 replicate per EZ; taken every 3 days[b] ENDFIELD. Collect the replicate at the downwind location of the EZ perimeter.

RA – Removal Action

EZ - Exclusion Zone

a - Describes the specific purpose for sampling.

b - One replicate sample will be collected at each EZ, but if work continues at an EZ for more than three (3) days, a replicate air sample will be collected every 3rd day until work at the EZ is complete.

Table 3-2 provides a summary of the ambient air monitoring program requirements, and the action limits and actions for the ambient air monitoring program.

TABLE 3-2

SUMMARY OF PROGRAM REQUIREMENTS - AMBIENT AIR MONITORING

Reason for the Work	Boundaries of the Work	Sampling Location	Why the Sampling Locations Were Chosen	Method of Analysis	Field – Raw Data Requirements
1. To assure that the excavation work activities are not causing an asbestos excursion beyond the exclusion zone.	1. Exclusion zone and the impacted grid area being excavated.	1. Four (4) air monitoring stations will be established. All 4 points of the compass will be involved.	1. To monitor air quality at the exclusion zone and at the boundaries of impacted grid area. 2. To assure that asbestos is not migrating beyond the grid area being excavated.	1. PCM (NIOSH 7400) on a daily basis. 2. TEM (NIOSH 7402) on a pre-determined confirmation basis to identify fibers.	1. The sample coordinator and air monitoring manager will prepare and maintain necessary logs and results of the analysis on a daily basis.

ACTION LIMITS AND ACTIONS - AMBIENT AIR MONITORING

Work Task	Action Limits	Actions
1. Monitor air quality at the perimeter of the exclusion zone and boundaries of the impacted grid area by collecting high volume air samples on filters and conducting analysis to determine fiber content of the air.	1. If air sample results show an excursion of 0.1 asbestos fiber/cc or greater using the TEM Method 7402 (analytical method), the operation will be shut down and the EPA Project Manager will be notified.	1. Examine the cause for the excursion and correct it. Excavation activities will not start up until all corrective actions have been implemented and cleared by the EPA Project Manager.

Section 4
Personal Air Monitoring Program, Rationale, and Locations

This section describes the overall strategy, location, and rationale for the personal air monitoring program.

4.1 Sampling Strategy

To provide assurance that the breathing zone of the workers involved in this project is free from asbestos during soil excavation activities and during confirmatory soil sampling.

4.2 Sampling Methods

The quality of the ambient air in the breathing zone of selected representative workers covering all job assignments will be measured by passing a known quantity of air over a special filter which traps and retains fibers or other particles. The counting of these fibers, related back to the volume of air, will provide an accurate indication of the air quality as related to the breathing environment. The analytical method to be used in this determination is NIOSH Method 7400 entitled *Asbestos and Other Fibers by PCM* (Revision 3 – dated 05/15/89). This method, also known as Phase Contrast Microscopy (PCM), has an accuracy of 0.04 to 0.1 fibers/cubic centimeter (fiber/cc), depending on the volume of air passed through the filter. The procedure, however, cannot distinguish between asbestos fibers and other fibers. The OSHA (Occupational Safety and Health Administration) standard for allowable asbestos fibers in the air breathed by exposed workers is 0.1 fiber/cc on an 8-hour/day exposure scenario. If the filter count meets or exceeds the OSHA allowable fiber count using the PCM method, the sample will be analyzed using a method that can identify asbestos fibers.

This method is called Transmission Electron Microscopy (TEM), and the fibers are counted using the AHERA (Asbestos Hazard Emergency Response Act) counting rule. With an election microscope, the fibers can be accurately identified as to type of asbestos and the actual number of fibers established on a representative portion of the filter. The method to be used is NIOSH Method 7402, entitled *Asbestos by TEM* (Issue 2, dated 08/15/94). If the results of the testing by TEM indicate that the workers are exposed to asbestos levels greater than the OSHA allowable standards, the project manager will stop work and corrective action will be taken.

4.3 Personal Air Monitoring Sampling

Personal air sampling devices will be attached to approximately 25% of the workers to monitor air quality in the breathing zones. The air monitoring data will be used to document that the level of respiratory protection is adequate for the task(s) being conducted and to provide guidance to project management.

The personal air monitoring equipment will be provided and maintained by KEH.

4.3.1 Sample Collection

Battery operated air pumps will be attached to approximately 25% of the workers comprising all of the tasks on the project. At the end of each day, the air collection devices will be submitted to KEH for analysis.

Samples will be collected on 25 millimeter (mm) mixed-cellulose ester membrane filters, 0.45 micron pore size, with an effective collection area of 385 mm^2. All filters used by KEH are pre-assembled by the manufacturer in three-stage, conductive sampling cassettes with extension cowls. Asbestos removal is a dynamic process and may necessitate altering sampling strategies regarding the numbers, locations, and analysis (e.g., PCM and TEM) of samples collected in and around each work area. Any

changes to sampling strategies will be coordinated through the Sample Coordinator, the Air Monitoring Manager, and the Project Coordinator.

Low volume pumps for personal samples will be operated at 0.5 to 2.5 liters per minute. KEH representatives will use professional judgment and expertise in determining sample flow rates and locations based upon project conditions. Flow rates will be recorded at the beginning and at the end of the sampling period, utilizing an airflow rotameter calibrated against a primary flow calibration instrument (DryCal DC Lite # DCL739). Start times and stop times will be recorded for all personal air sampling periods. KEH will maintain a primary flow calibration instrument at all times during this project and will preserve calibration records.

4.3.2 Laboratory Analysis

Analysis of personal air samples will be analyzed by KEH using the PCM method (NIOSH 7400), and the TEM method analysis (AHERA TEM) will be taken to EMSL in Libby for analysis.

PCM Air Analysis - NIOSH 7400 TEM Air Analysis - AHERA TEM

4.3.3 Personal Air Sample Handling and Identification

This section provides a brief summary of the personal air sample handling procedures and field custody procedures.

In general, a unique alphanumeric code will identify each sample collected during the sampling events. The coding system will provide a tracking record to allow retrieval of information about a particular sample and to ensure that each sample is uniquely

identified. Sample numbers will correlate with locations to be sampled. The sample locations and numbers will be identified in the field logbooks.

Personal air samples will be labeled with index identification numbers supplied and maintained by the sample coordinator.

See Appendix 1 for a copy of the Request for Modification Form, Chain-of –Custody Form, and Libby Field Sample Data Sheet (FSDS) for Personal Air monitoring.

4.3.4 CIH Review and Sign-Off

Upon completion of the personal air sampling, a final technical report will be generated that describes the project activities, personal air sample results, and visual inspection data.

4.3.5 Equipment

KEH maintains a complete inventory of air sampling pumps, calibration equipment, and sampling media necessary to conduct the work at multiple projects and multiple project locations. All of the rotameters are calibrated quarterly against a primary flow calibration standard (Dry Cal DC Lite). An inventory of up to 20 high-volume pumps and 10-15 low-volume (i.e., battery) pumps will be maintained onsite to support air monitoring requirements for the project.

KEH battery pumps have a typical run-discharge cycle of approximately 16 hours for full shift coverage when work area conditions do not allow for electric pumps. Multiple battery pumps and battery packs will be maintained on site to adequately monitor the project on a daily basis and to allow for charge-discharge cycles, pump failures, and backup capabilities.

4.3.6 Quality Assurance/Quality Control (QC) Samples

A number of QA/QC personal air samples will be collected. Every 20th personal air sample will be reanalyzed for any deviations by KEH.

EPA does not require any split personal air samples because the personal air samples are collected to monitor worker safety; which is the responsibility of the employer.

Table 4-1 provides a summary of the personal air monitoring program requirements, and the action limits and actions for the personal air monitoring program.

TABLE 4-1

SUMMARY OF PROGRAM REQUIREMENTS - PERSONAL AIR MONITORING

Reason for the Work	Boundaries of the Work	Sampling Location	Why the Sampling Locations Were Chosen	Method of Analysis	Field – Raw Data Requirements
1. Protect the safety of the workers during soil excavation activities and during soil confirmatory sampling.	1. Work areas and within truck cabs.	1. 25% of personnel will be fitted with personal air monitoring equipment. 2. Personnel will be equipped with personal air sampling equipment, with the filter intake located in the breathing zone.	1. To provide personnel on site protection regarding potential asbestos exposure. The proximity of the sampling apparatus will be located near the breathing zone, which will accelerate air intake and provide better personal air monitoring and provide for better analysis.	1. PCM (NIOSIH 7400) analysis will be conducted on a daily basis for 25% of the workers. 2. TEM (NIOSH 7402) analysis will be conducted in the event that fibers are found on the filters.	1. The sample coordinator and air monitoring manager will oversee this work effort and make field adjustments (PPE, etc.) as needed. Equipment will be calibrated before use and installation. All field data generated will be recorded. The results of the sample analysis will be reported daily to the sample coordinator and air monitoring manager.

TABLE 4-1, continued

ACTION LIMITS AND ACTIONS -
PERSONAL AIR SAMPLING

Work Task	Action Limits	Actions
1. Monitor personal breathing air quality from 25% of the workers on a daily basis using sample equipment placed in the breathing zone.	1. Sampling will be conducted on a daily basis for an 8-hour shift. 2. Sample filters will be analyzed for fibers. 3. Fiber counts greater than 0.1 fiber/cc will be followed by TEM (NIOSH 7402) analysis. 4. Results from the TEM analysis that are greater than 0.1 asbestos fiber/cc will require an immediate shut down of field activities.	1. Notify the EPA Project Manager of the excursion. 2. Shut the project down until corrective action is taken. 3. Document all steps of the procedure. 4. Review policies and practices. 5. Take corrective action as required before excavation activities are resumed.

Section 5
Soil Confirmation Sampling Program, Rationale, and Locations

5.1 Initial Work Efforts

The initial work efforts will include:

- Resurveying of the fifty-three (53) grid area to establish 100-ft. x 100-ft. grid areas.
- EPA's soil data will be reviewed to establish the "appropriate category" for each 100-ft. x 100-ft. grid area. See below for a list of each category.
- A 100-ft. x 100-ft. grid area map will be generated to identify the "category" for each 100-ft. x 100-ft. grid. This map will be used to implement the appropriate action in each area.

  See Figure 5-1 for the Fifty-Three (53) Grid Area.

5.1.1 Category List

- No asbestos detected in the soil samples and no substantial visual vermiculite present.
- No asbestos detected in the soil samples but substantial visual vermiculite is present.
- Asbestos is present in the soil samples at greater than or equal to 1%.
- Asbestos was detected in the soil samples at trace or less than 1% in the 0-18-inch depth interval.

  See Figure 5-2 for the Soil Sample Category – Action Process.

5.2 Plan of Action for Each Category

A plan of action will be determined for each 100-ft. x 100-ft. grid area category. The plan of action for each category is described below.

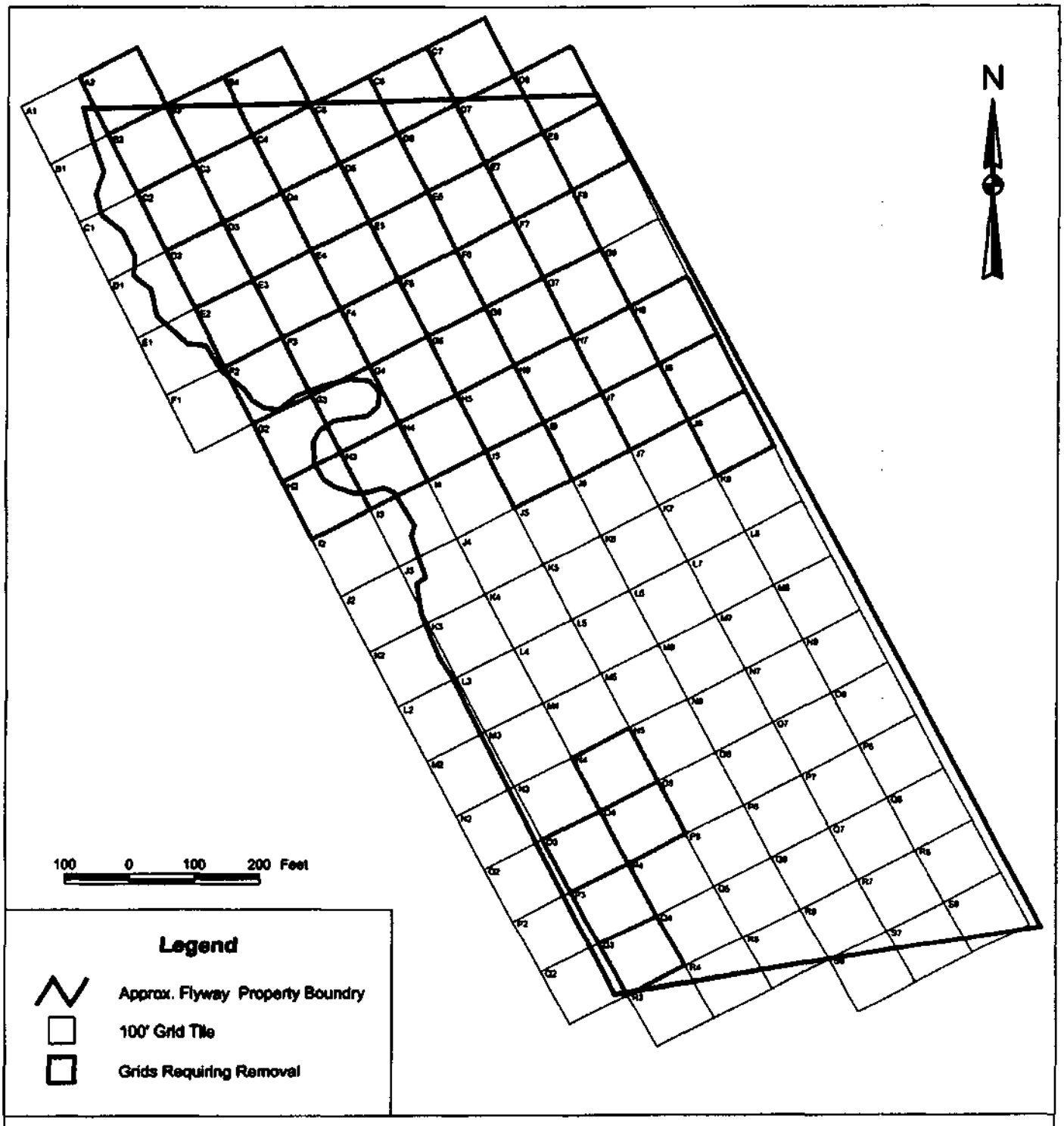


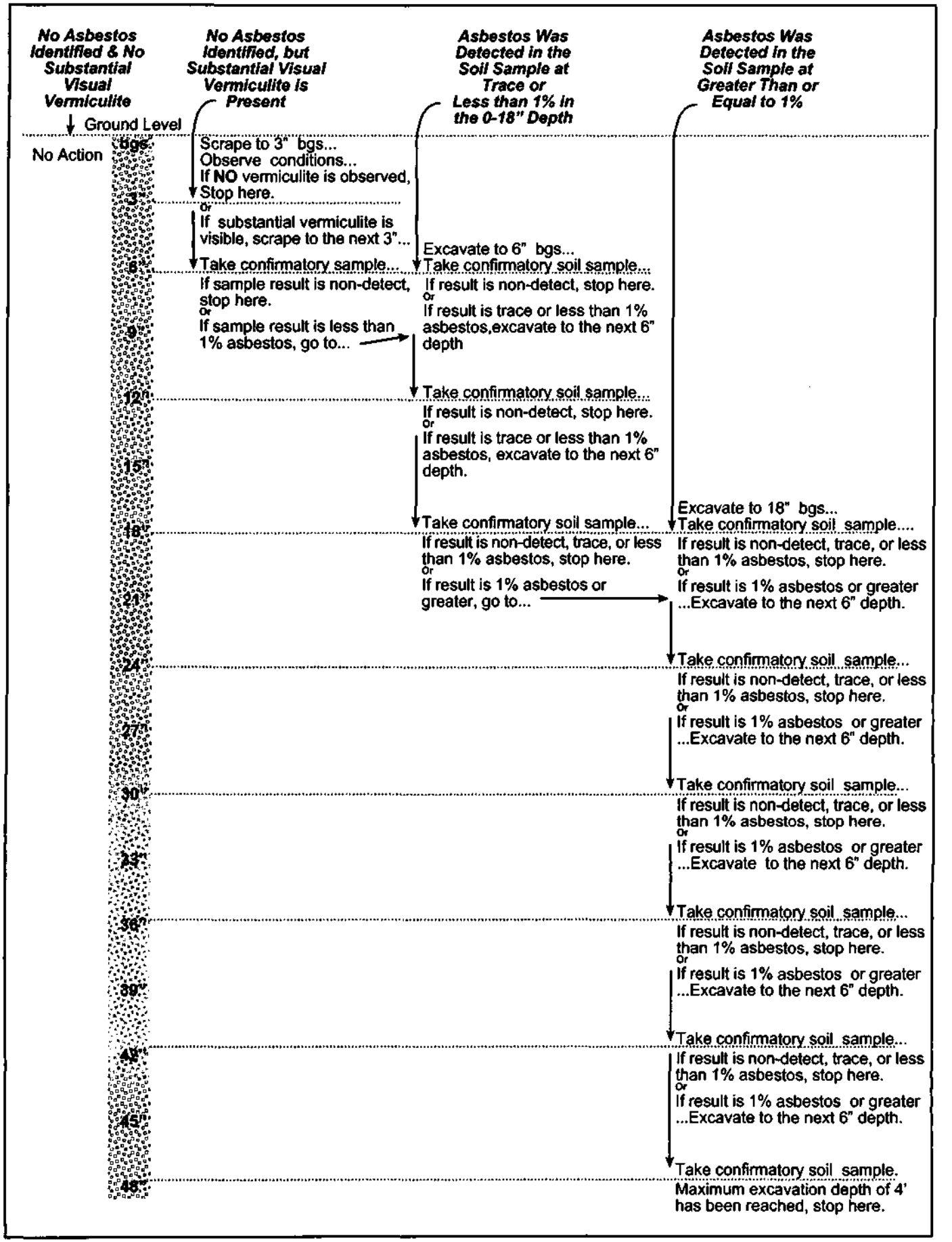
FIGURE 5-1
FLYWAY PROPERTY
LIBBY, MONTANA
53 GRID AREA

Remedium Group Inc.

Data Source - Plan by CDM
Entitled " Libby, Montana Figure A-2-2 "

Plan Prepared By:
Hayes & Associates
Woburn, Massachusetts

Figure 5-2
Soil Sample Category - Action Process



5.2.1 No Asbestos Identified in the Soil Samples and No Substantial Visual Vermiculite Present

No action will be required in this 100-ft. x 100-ft. grid area.

5.2.2 No Asbestos Identified in the Soil Samples but Substantial Visual Vermiculite is Present

Three (3) inches of soil will be removed (scraped) and the excavation will be visually inspected. If substantial vermiculite is still present, an additional 3-inches of soil will be removed. At this point, confirmatory soil samples will be collected. The goal is to have non-detect sample readings from the 0-18-inch depth interval. If the soil sample results read non-detect for asbestos, then no further action is required. However, it may be required, based on the soil sample results, that the plan of action may follow for asbestos present in the soil sample at greater than or equal to 1%, or for asbestos detected in the soil samples at trace or less than 1% in the 0-18 inch depth interval.

5.2.3 Asbestos is Present in the Soil Samples at Greater than or Equal to 1%

Eighteen (18) inches of soil will be removed in this grid area. After the soil is excavated, confirmatory soil samples will be collected. Depending on the soil sample results (1% asbestos or greater), additional soil will be removed from 6-inch intervals, followed by confirmatory soil samples. The depth of the excavation will not exceed 4-feet. The goal is to have less than 1% asbestos from the confirmatory soil samples.

5.2.4 Asbestos Was Detected in the Soil Samples at Trace or Less Than 1% in the 0-18 Inch Depth Interval

If the soil sample that contained less than 1% asbestos is at the surface, 0-6 inches of soil will be removed and confirmatory soil samples collected. This will be repeated, if necessary, to achieve a goal of non-detect asbestos in the 0-18-inch depth interval.

If the soil samples that contained less than 1% asbestos are for a soil sample collected at depth (within the 0-18-inch depth interval), soil will be removed to that depth and confirmatory soil samples collected. The goal is to have non-detect asbestos in the 0-18-inch depth interval. If the confirmatory soil samples show greater than 1% asbestos at 18-inch, additional soil will be removed (6-inch intervals) and confirmatory soil samples will be collected. The depth of the excavation will not exceed 4-feet.

5.3 Confirmation Soil Sampling

Each 100 ft. x 100 ft. grids will be subdivided into 20 ft. x 20 ft. subgrids (see Figure 5-2). A composite soil sample will be collected from five (5) adjacent subgrids. Samples of surface soil will be collected at the approximate center-point of each subgrid (1, 2, 3, 4, etc.). Partial grids will be sampled and composited in five (5) aliquots or lesser units for areas without five (5) adjacent subgrids.

Confirmatory soil samples will be collected from a 0-2-inch depth interval using a decontaminated trowel or appropriate disposable sampling device.

Each of the soil sample locations will be located using GPS equipment.

5.3.1 Laboratory Analysis

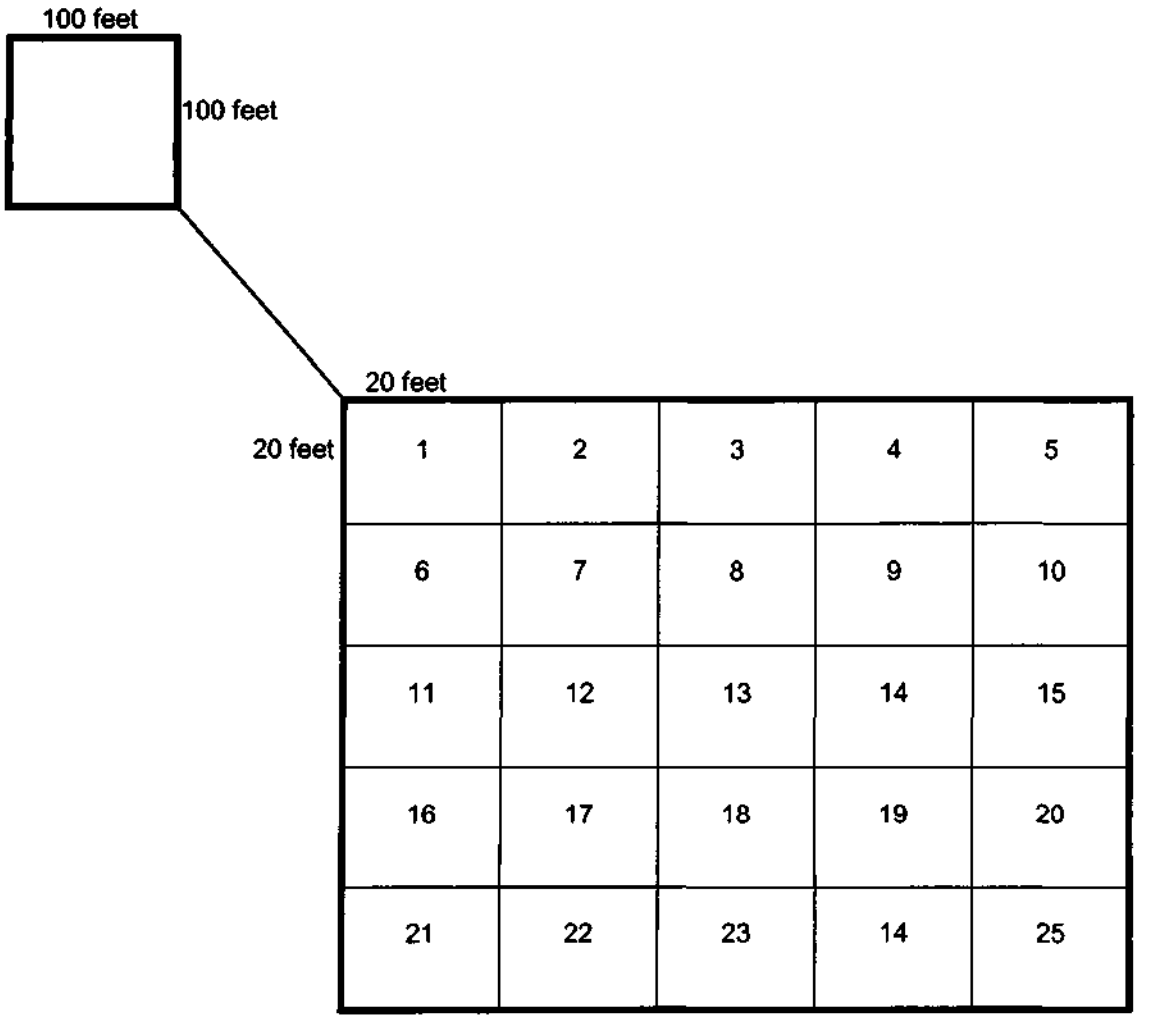
The confirmatory grid area soil samples will be analyzed by Polarized Light Microscopy (PLM) for asbestos. The detailed analysis methods and procedures will follow NIOSH 9002.

Confirmatory Soil Analysis - NIOSH 9002 Method

5.3.2 Equipment

Decontaminated soil sampling equipment will be used. The anticipated sampling device will be a decontaminated trowel. However, disposable sampling devices may be used if deemed to be more practical and cost-effective.

Figure 5-3
Soil Sampling Grid
Libby, MT



Example: Typical composite soil sample will be generated by combining one center soil sample from each of five sub-grids, as shown above by the highlighted sub-grids.

5.3.3 Soil Sample Handling and Identification

This section provides a brief summary of the soil sample handling procedures and field custody procedures.

In general, a unique alphanumeric code will identify each sample collected during the sampling events. The coding system will provide a tracking record to allow retrieval of information about a particular sample and to ensure that each sample is uniquely identified. Sample numbers will correlate with locations to be sampled. The sample locations and numbers will be identified in the field logbooks.

Soil samples will be labeled with index identification numbers supplied and maintained by the sample coordinator.

See Appendix 1 for a copy of the Request for Modification Form, Chain-of-Custody Form, and Libby Field Sample Data Sheet (FSDS) for Soil Sampling.

5.3.4 Quality Assurance/Quality Control (QA/QC Samples)

The EPA requires duplicate/replicate samples for independent analysis. For soils, splits of well homogenized samples will be submitted to EPA. The frequency of the split soil samples are identified in Table 5-1.

Table 5-1 – Frequency of the Split Soil Samples

Data Quality Objections[a]	Sample Description	Frequency
RA Confirmation	Asbestos in soil confirmation	1 homogenized split for every 2 samples collected (50%)[b]

RA – Removal Action

a - Describes the specific purpose for sampling.

b - The EPA will require this rate initially. However, the EPA may decide to reduce the rate if data for split pairs are concordant or alternately, the rate will increase if data is discordant.

See Table 5-2 for a summary of asbestos in soil confirmation sampling program requirements and action limits and action.

TABLE 5-2

SUMMARY OF PROGRAM REQUIREMENTS - SOIL CONFIRMATION SAMPLING

Reason for the Work	Boundaries of the Work	Sampling Location	Why the Sampling Locations Were Chosen	Method of Analysis	Field – Raw Data Requirements
1. To ensure that the quality of the soil conditions, after excavation meet the cleanup standards as defined in the SAP (<1% asbestos and/or as per category).	1. The Fifty-Three (53) impacted grid area.	1. Each 100 ft. x 100 ft. grid area will be subdivided into 20 ft. x 20 ft. subgrids. A composite soil sample will be collected at the approximate center-point of each subgrid. Partial grids will be sampled and composited in five (5) aliquots or lesser units for areas without five (5) adjacent subgrids. The soil samples will be collected from a 0-2 inch depth interval using a decontaminated trowel or appropriate disposable sampling device.	1. To make sure that the Fifty-Three (53) impacted grid area is remediated to the cleanup standard (<1% asbestos and/or as per category).	1. PLM (NIOSH 9002).	1. See procedures for field and raw data requirements.

ACTION LIMITS AND ACTIONS - SOIL CONFIRMATION

Work Task	Action Limits	Actions
Grid areas where no asbestos was detected in the soil samples and no substantial vermiculite was present.	1. No asbestos and no substantial vermiculite present.	1. No action will be required in this 100-ft. x 100-ft. grid area.
No asbestos identified in the soil samples, but substantial visual vermiculite is present.	1. Non-detect sample readings from the 0-18-inch depth interval. 2. If required, less than 1% asbestos deeper than 18-inches to a maximum depth of 4-feet.	1. Three (3) inches of soil will be removed (scraped) and the excavation will be visually inspected. If substantial vermiculite is still present, an additional 3-inches of soil will be removed. At this point, confirmatory soil samples will be collected. Depending on the soil sample results, the goal is to have non-detect sample readings from the 0-18-inch depth interval. If required, based on the soil sample results, the goal is to have less than 1% asbestos deeper than 18-inches to a maximum depth of 4-feet.

Asbestos is present in the soil samples at greater than 1%.	1. < 1% asbestos from the confirmatory soil samples at 18-inches.	1. Excavate contaminated soil to a depth of 18-inches. Then collect confirmatory soil samples. If the soil results are <1% asbestos no further action. If the soil results are ≥1% asbestos an additional 6-inches of soil will be removed and additional confirmatory soil samples will be collected, until soil results are <1% asbestos to a maximum depth of 4-feet.
Asbestos was detected in the soil samples at < 1% in the 0-18-inch depth interval.	1. Non-detect asbestos in the 0-18-inch depth interval. 2. < 1 % asbestos from the confirmatory soil samples at 18-inches or to a maximum depth of 4-feet.	1. If the soil sample that contained < 1% asbestos is at the surface, 0-6-inches of soil will be removed and confirmatory soil samples collected. This will be repeated, if necessary, to achieve a goal of non-detect in the 0-18-inch depth interval. If the soil samples that contained < 1% asbestos are for a soil sample collected at depth (within the 0-18-inch depth interval), soil will be removed to that depth and confirmatory soil samples collected. The goal is to have non-detect asbestos in the 0-18-inch depth interval. If confirmatory soil samples show > 1 % asbestos at 18-inches, additional soil will be removed (6-inch intervals) and confirmatory soil samples will be collected. The depth of the excavation will not exceed 4-feet.

Section 6
PCB Soil Sampling

A pole mounted transformer is located next to an abandoned pump house.

According to information generated from SunOhio, the transformer does not contain PCB liquids. A copy of the SunOhio fact data sheet is located in Appendix 2.

In addition, EPA sampled soil in the area where the pole-mounted transformer is located. According to EPA, no PCBs were identified in any of the soil samples.

In light of this information, no PCB soil sampling is proposed in the pole-mounted transformer area.

Section 7
Field Activities and Procedures

The following is a summary of field activities and procedures that will be performed by Remedium personnel for removal action sampling:

- Mobilization
- Procurement of equipment and supplies
- Documentation of field activities
- Maintenance and calibration of field instruments and equipment
- Photographic documentation
- Soil and air sampling
- Decontamination of sampling equipment

7.1 Mobilization

Prior to the mobilization for field activities, a field planning meeting will be conducted by the Remedium project coordinator and attended by the project manager, sample coordinator and air monitoring manager, project quality assurance coordinator, health and safety officer, excavation and equipment contractor, and field staff. The meeting will briefly discuss and clarify the following:

- Objectives and scope of the fieldwork;
- Equipment and training needs;
- Field operating procedures, schedule of work tasks, and individual assignments;
- Required QC measures;
- Health and safety requirements;
- Documents governing fieldwork that must be on site; and
- Any changes in the field plan documents.

A written agenda will be distributed and an attendance list will be signed. Copies of these documents will be maintained in the project files, Libby office. Additional meetings will be held when the documents governing fieldwork require it or when the scope of the assignment changes significantly.

The field team personnel will:

- Review and understand the SAP, QAPP, and HASP;
- Ensure that all sample analyses are scheduled through the laboratory;
- Obtain required sample containers and other supplies;
- Obtain and check field sampling equipment;
- Obtain personal protective equipment (PPE); and
- Follow QA/QC procedures.

7.2 Equipment, Supplies, and Sample Containers

In general, the following equipment, supplies, and sample containers will be required for the air and soil sampling activities:

- Air sampling equipment (e.g., pumps, sample cassettes, etc.);
- Soil sampling equipment (e.g., trowels or scoops, etc.);
- Field logbooks including indelible ink pens;
- Camera;
- Custody seals, chain of custody forms, and sample paperwork;
- Shipping materials (e.g., tape, etc.);
- Decontamination equipment and supplies;
- PPE; and
- Sample containers (e.g., cassettes, plastic 2-gallon baggies, zipper-top, coolers, etc.).

7.3 Field Documentation

Information and notations will be recorded as required in the applicable field logbook.

7.4 Field Instrument and Equipment Calibration and Maintenance

No field measurements (e.g., PID, etc.) will be collected during the collection of the confirmatory soil samples. The only contamination to be targeted will be asbestos.

Air sampling (ambient and personal sampling) will be conducted using field equipment. This equipment will be calibrated and maintained in accordance with equipment manual guidelines.

7.5 Photographic Documentation

Photographs will be taken at each subgrid sample location and at any place that the field sampling personnel determine necessary.

7.6 Field Sampling Methods and Procedures

This section provides brief summaries of field sampling methods and procedures. The HASP should be consulted to determine health and safety protocols for performing site work, and the QAPP should be consulted to determine the overall project QA/QC procedures. Prior to initiating field activities, the field team will review and discuss, in detail, the SAP, HASP, and QAPP.

The following procedures were developed specific to this project and are listed below:

- **Confirmation Soil Sample Collection Procedure (CSSCP-Libby-01)** - See Appendix 3 for a copy of this procedure. This procedure was developed from CDM Federal Programs Corporation's Site-Specific Standard Operating

Procedure for Soil Sample Collection – CDM-LIBBY-05 (Rev. 1 dated 4.3.02 and 4/17/04).

- **Sample Custody Procedure (SCP-Libby-01)** - See Appendix 4 for a copy of this procedure. This procedure was developed from CDM Federal Programs Corporation's Sample Custody/1-2 (Rev. 3, date 10/12/01) and Sample Custody/1-2/Project-Specific Modification (Rev. dated 5/03).
- **Packaging and Shipping of Environmental Sample Procedure (PSESP-Libby-01)** - See Appendix 5 for a copy of this procedure. This procedure was developed from CDM Federal Programs Corporation's Packaging and Shipping of Environmental Samples/2-1 (Rev. 1 dated 6/20/01) and Packaging and Shipping of Environmental Samples/2-1/Project-Specific Modification (Rev. date 5/03).
- **Field Logbook Content and Control Information Procedure (FLCCIP-Libby-01)** - See Appendix 6 for a copy of this procedure. This procedure was developed from CDM Federal Programs Corporation's Field Logbook Content and Control/4-1 (Rev. 4 dated 6/20/01) and Field Logbook Content and Control/4-1/Project-Specific Modification (REV. dated 5/03).
- **Photographic Documentation of Field Activities Procedure (PDFAP-Libby-01)** - See Appendix 7 for a copy of this procedure. This procedure was developed from CDM Federal Programs Corporation's Photographic Documentation of Field Activities/4-2 (Rev. 5, dated 10/12/01) and Photographic Documentation of Field Activities/4-2/Project-Specific Modification (Rev. dated 5/03).
- **Field Equipment Decontamination Procedure (FEDP-Libby-01)** - See Appendix 8 for a copy of this procedure. This procedure was developed from CDM Federal Programs Corporation's Field Equipment Decontamination at

Nonradioactive Sites/4-5 (Rev. 5 dated 5/03) and Field Equipment Decontamination at Nonradioactive Sites/4-5/Project-Specific Modification REV. dated 5/03).

SECTION 8
DOCUMENTATION/RECORDS

The EPA will be provided /legible/readable copies of all information generated during the remediation work effort. This will include (but may not be limited to):

- All electronic data-bases. The soil analytical data base will be provided by EMSL in order that the soil analytical data can be electronically submitted directly to EPA's Libby 2 system. The air monitoring analytical data base will be provided by Koch Environmental Health, Inc.;
- Copies of all field log book pages and log/note sheets;
- Copies of all photographs;
- Copies of all QA/QC forms and documents (e.g., sample chain of custody forms, etc.);
- Communication logs; and
- Reports.

Appendix 1
Field Sampling Forms

Request for Modification
to the
Libby Sampling and Quality Assurance Project Plan
Field Activities
LFO-000000

Instructions to Requester: **Fax to contacts at bottom of form for review and approval.**
File approved copy with Data Manager at the Libby Field Office (LFO).
Data Manager will maintain legible copies in a binder that can be accessed by LFO personnel.

Project QAPP (circle one): Phase I (approved 4/00) Phase II (approved 2/01)
Removal Action (approved 7/00) Contaminant Screening Study (approved 5/02)
Other (Title and approval date): _____

SOP (Number and Revision No.):_____

Other Document (Title, Number/Revision):_____

Requester:_____ Title:_____
Company:_____ Date: _____

Description of Modification:

_____
_____
_____
_____

Field logbook and page number modification is documented on:_____

Reason for modification:

_____
_____
_____
_____

Duration of Modification (circle one):
Temporary Date(s):_____
Resident address(es): _____
_____
- If appropriate, attach a list of all applicable Index Identification numbers.

Permanent (complete Proposed Modification Section) Effective Date:_____

Proposed Modification to SQAPP (attach additional sheets if necessary; state section and page numbers of SQAPP when applicable):_____
_____

Technical Review and Approval: _____ Date:_____
(Volpe Project Manager or designate)

EPA Review and Approval: _____ Date:_____
(USEPA RPM or designate)

Chain of Custody Record **Libby Asbestos Investigation** **No. F0000**

From: _____

_____

_____

Send to: _____

_____

_____

via: hand delivery shipped

Sample Placed in Cooler/Bag	Index ID	Suffix ID	Sample Date	Sample Media (S=Soil; W=Water; D=Dust; A=Air; B=Bulk Insulation)	Volume (L) or Area (cm^2)	Filter Pore Size (0.8µm or.45µm)	Turn Around Time	Analysis Request*	Comments	Sample Received by Lab

Stationary AIR: PCM (by NIOSH 7400 (Issue 2)) TEM-ISO 10312 (by ISO 10312:1995(E)) TEM–AHERA (AHERA).
Personal AIR: PCM (by NIOSH 7400 (Issue 2)) TEM-ISO 10312 (by ISO 10312:1995(E)) TEM–AHERA (AHERA).
SOIL: PLM-9002 (NIOSH 9002 (Issue 2))

Total Number of Samples _____ END OF SUBMITTAL

Additional Comments: _____

_____

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt

Chain of Custody Record **Libby Asbestos Investigation** **No. F0000**

From: _____

Send to: _____

via: hand delivery shipped

Stationary AIR: PCM (by NIOSH 7400 (Issue 2)) TEM-ISO 10312 (by ISO 10312:1995(E)) TEM–AHERA (AHERA).
Personal AIR: PCM (by NIOSH 7400 (Issue 2)) TEM-ISO 10312 (by ISO 10312:1995(E)) TEM–AHERA (AHERA).
SOIL: PLM-9002 (NIOSH 9002 (Issue 2))

Total Number of Samples _____ END OF SUBMITTAL

Additional Comments: _____

Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt
Relinquished by (Signature and Company)	Date/Time	Received by (Signature and Company)	Date/Time	Sample Condition upon Receipt

Sheet No.: SA-_____

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR STATIONARY AIR

Field Logbook No: _____ Page No: _____ Sampling Date: _____

Address: _____ Owner/Tenant: _____

Business Name: _____

Land Use: Commercial Mining Roadway Other ( )

Sampling Team: REMEDIUM Other _____ Names: _____

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID			
Location ID			
Sample Group			
Location Description			
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Indoor Outdoor NA	Indoor Outdoor NA	Indoor Outdoor NA
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number			
Flow Meter ID No.			
Start Date			
Start Time			
Start Flow (L/min)			
Stop Date			
Stop Time			
Stop Flow (L/min)			
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA	Pre Post Clear 2nd Clear 3rd Clear NA
Field Comments Cassette Lot Number: _____	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
QC (Field Team) _____ Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by	QC by

vs 101503

Sheet No.: S-_____

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR SOIL

Field Logbook No: _____ Page No: _____ Sampling Date: _____

Address: _____ Owner/Tenant: _____

Business Name: _____

Land Use: Commercial Mining Roadway Other ( )

Sampling Team: REMEDIUM Other _____ Names: _____

Data Item	Sample 1	Sample 2	Sample 3
Index ID			
Location ID			
Sample Group			
Location Description (circle)	Grid _____ Other _____	Grid _____ Other _____	Grid _____ Other _____
Category (circle)	FS FD of _____ Field Blank (lot or equipment)	FS FD of _____ Field Blank (lot or equipment)	FS FD of _____ Field Blank (lot or equipment)
Matrix Type (Surface soil unless other wise noted)	Surface Soil Other _____	Surface Soil Other _____	Surface Soil Other _____
Type (circle)	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____	Grab Comp. # subsamples _____
Sample Time			
Top Depth (in.)			
Bottom Depth (in.)			
Field Comments Note if vermiculite is visible in sampled area	BD-_____	BD-_____	BD-_____
Entered (LFO) _____	Remedium: Entered _____ Validated _____	Remedium: Entered _____ Validated _____	Remedium: Entered _____ Validated _____

For Field Team Completion (Provide Initials) _____	Completed by	QC by

vs 101503

Sheet No.: PA-_____

LIBBY FIELD SAMPLE DATA SHEET (FSDS) FOR PERSONAL AIR

Field Logbook No: _____ Page No: _____ Sampling Date: _____

Address: _____ Owner/Tenant: _____

Business Name: _____

Land Use: Commercial Mining Roadway Other ( )

Sampling Team: REMEDIUM Other _____ Names: _____

Person Sampled: _____ SNN: _____ Task: _____

Data Item	Cassette 1	Cassette 2	Cassette 3
Index ID			
Location ID			
Sample Group			
Location Description			
Category (circle)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)	FS FB-(field blank) LB-(lot blank)
Matrix Type (circle)	Outdoor	Outdoor	Outdoor
Filter Diameter (circle)	25mm 37mm	25mm 37mm	25mm 37mm
Pore Size (circle)	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8	TEM- .45 PCM- 0.8
Flow Meter Type (circle)	Rotometer DryCal NA	Rotometer DryCal NA	Rotometer DryCal NA
Pump ID Number			
Flow Meter ID No.			
Start Date			
Start Time			
Start Flow (L/min)			
Stop Date			
Stop Time			
Stop Flow (L/min)			
Pump fault? (circle)	No Yes NA	No Yes NA	No Yes NA
MET Station onsite?	No Yes NA	No Yes NA	No Yes NA
Sample Type	TWA EXC NA	TWA EXC NA	TWA EXC NA
Field Comments Cassette Lot Number: _____	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No	Archive Blank (circle): Yes No
QC (Field Team) _____ Entered (LFO) _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____	Volpe: Entered _____ Validated _____

For Field Team Completion (Provide Initials)	Completed by	QC by

vs 101503

Appendix 2
SunOhio Fact Data Sheet Regarding The Pump House Transformer Sampling

TRANSFORMER OIL TEST REPORT

Page 83

Equip. I.D. _____

CUSTOMER W.R. Grace Co. STREET _____

CONTACT _____ PHONE _____ CITY _____ STATE _____

LOCATION River pump pole mt.

PORT. EQUIP. _____ RIG #1 X RIG #2 X HOSE LENGTH 40'

OUTDOOR X ROOF _____ POLE X

INDOOR _____ VAULT _____ PLATFORM _____

NAME PLATE DATA

TRANS. X

MFR. GE PRI. VOLTS 2400/4160Y OIL SWITCH _____

SER. NO. 7303571 SEC. VOLTS 120/240 OIL CIRCUIT BREAKER _____

KVA 10 PHASE 1 TANK (S) 1 _____ 2 _____ 3 _____

EQUIPMENT DATA

LIQUID LEVEL N OIL FILLED BUSH. _____ TAP. CHANGER _____

IND. TEMP. °C _____ FANS _____ PAINT EXCL. _____ FAIR X

PEAK TEMP. °C _____ WATER COOLED _____ PAINTING REQUIRED _____

PRESS. LBS.± _____ WELDED LID _____ TOP VALVE DIAM. _____

MISC. _____ RADIATORS _____ BOT. VALVE DIAM. _____

GAS SAMPLE FITTING _____ CONS. TANK _____ POP TOP X

INSULATING FLUID DATA

OIL X ASKAREL _____ OTHER _____ GALLONS 10E

ASTM NO		D 1500	D 1524	D 974	D 877	D 971	D 1169	D 924					
DATE	JOB NUMBER	COLOR	SLUDGE (VISUAL)	NEUT NO MG KOH/G	DIELECTRIC KV	IFT DYNES/CM	SPECIFIC GRAVITY	POWER FACTOR (OPTIONAL)		DEHYDRATE	RECLAIM	MARGINAL	RESAMPLE (1 YR)
6/81	2633	L2.5	Clear	.42	30	13.8	.874				X		

COMMENTS _____

P. C. B.

CERT. # 73797

SAMPLED BY DW TESTED BY PS

P.P.M. 16

SUNOHIO

1700 GATEWAY BLVD. S.E., CANTON, OHIO 44707

Phone 216-452-0837

FROM : WR GRACE LIBBY FAX NO. : 4062933749 Aug. 13 2002 11:45AM P1

Appendix 3
Confirmation Soil Sample Collection Procedure (CSSCP-Libby-01)

Date: March 22, 2004 Procedure No. CSSCP-Libby-01

Site: Flyway Site
Libby, Montana

Confirmatory Soil Sample Collection Procedure (CSSCP)

The following procedure applies to the collection of confirmatory soil samples at the Flyway Site.

Equipment

Sample Container – the sample container will consist of quart-sized zip-top plastic bags.
Trowel – for collecting surface soil samples.
Stainless Steel Mixing Bowl – used to mix and homogenize composite soil samples after collection.
Gloves – for personnel protection and to prevent cross-contamination of samples. May be plastic or latex. Disposable, powderless.
Field Clothing and Personal Protective Equipment (PPE) – as specified in the health and safety plan (HASP).
Field Sprayers – will be used for decontaminating non-disposable sampling equipment between samples.
Silica Sand – for field equipment blank quality control (QC) samples.
Field Logbooks – used to record progress of sampling effort, and to record any problems and field observations.
Field Sample Data Sheet (FSDS) – used to record soil sample information.
Permanent Marking Pen – used to label sample containers.
Index ID Stickers – used to label containers.
Plastic Buckets – used to wash nondisposable field equipment between samples.
Trash Bag – used to dispose of gloves.
Cooler – used to store samples while in the field.
Chain of Custody Record – for ensuring custody of soil samples until shipping.
Custody Seals – for ensuring custody of soil samples during shipping.

Sample Collection

Don the appropriate PPE as specified in the HASP. A new pair of plastic gloves are to be worn for each soil sample collection.

- Each 100 ft. x 100 ft. grid will be subdivided into 20 ft. x 20 ft. subgrids (see Figure 5-3 discussed in Section 5.3 of the SAP). A composite soil sample will be collected from five (5) adjacent subgrids. Samples of surface soil will be collected at the approximate center-point of each subgrid (1, 2, 3, etc.). Partial grids will be sampled and composited in five (5) aliquots or lesser units for areas without five (5) subgrids.

- The soil samples will be collected from a 0-2 inch depth interval using a decontaminated trowel or appropriate disposable sampling devise.

- Each of the soil sample locations will be located using GPS equipment

- A description of the soil samples will be recorded in the field log book.

- Soil field duplicate samples will be collected at a rate of 1 per 20 (5 percent) of the field samples. These samples will be independently collected with separate sampling equipment.

Record Keeping and Quality Control

A field logbook should be maintained by each individual that is collecting samples as described in the Field Logbook Content and Control Procedure (FLBC-Libby-01). The FLBC procedure will detail specific conditions, but at a minimum, the following should be collected:

- Date;
- Time;
- Sampler (person collecting the sample);
- Weather Conditions;
- PPE used;
- Locations of any samples that could not be acquired; and
- Descriptions of any deviations of the FLBC for each sample.

- Quality control samples will include:
  - field duplicates; and
  - equipment blank samples.

Decontamination

All soil sampling equipment must be decontaminated prior to reuse. Specific instructions on sample equipment decontamination are included in Field Equipment Decontamination Procedure (FSDP-Libby-01). In general, the procedure to decontaminate all soil sampling equipment is outlined below:

- Remove all gross contamination with a plastic brush;
- Use clean water and a plastic brush to wash each piece of equipment;
- Remove excess water present on the equipment by shaking;
- Use a paper towel to dry each piece of equipment;
- Wrap dried equipment in aluminum foil.
- Once a week all soil sampling equipment will be cleaned using Alconox and clean water.

Spent gloves, and PPE must be disposed or stored properly at the site.

Appendix 4
Sample Custody Procedure (SCP-Libby-01)

Date: March 22, 2004 Procedure No. SC-Libby-01

Site: Flyway Site
Libby, Montana

Sample Custody

Due to the evidentiary nature of samples collected during environmental investigations, possession must be traceable from the time the samples are collected until their derived data are introduced as evidence in legal proceedings. To maintain and document sample possession, sample custody procedures are followed. All paperwork associated with the sample custody procedures will be retained at the Libby site office.

Responsibilities

Sampler - The sampler is personally responsible for the care and custody of the samples collected until they are properly transferred or dispatched.

Project Quality Assurance Coordinator (PQAC) – The PQAC is responsible for ensuring that strict chain-of-custody procedures are maintained during all sampling events. The PQAC is responsible for coordinating with the subcontractor laboratory to ensure that adequate information is recorded on the custody forms.

Field Sample Custodian – The field sample custodian, when designated by the PQAC, is responsible for accepting custody of samples from the sampler(s) and properly packing the samples to be shipped to the laboratory assigned to do the analyses. A field sample custodian is typically designated only for large and complex field efforts.

Required Supplies

- Chain-of-Custody records
- Custody seals
- Sample labels or tags
- Clear tape

Procedures

Chain-of-Custody

This procedure establishes a method for maintaining custody of samples through use of chain-of-custody record. This procedure will be followed for all samples collected or split samples accepted.

Field Custody

1. Collect only the number of samples needed to represent the media being sampled. As few people as possible should handle samples.
2. Complete sample labels or tags for each sample, using waterproof ink.

Transfer of Custody and Shipment

1. Complete a chain-of-custody record for all samples (see Figure 1 for an example of a chain-of-custody record.
2. The date/time will be the same for both signatures when custody is transferred directly to another person. When samples are shipped via common carrier (e.g., Federal Express), the date/time will not be the same for both signatures.
3. In all cases, it must be readily apparent that the person who received custody is the same person who relinquished custody to the next custodian.
4. If samples are left unattended or a person refuses to sign, this must be documented and explained on the chain-of-custody record.
5. Samples should be properly packaged for shipment and dispatched to the appropriate laboratory for analysis. Each shipment must be accompanied with a separate chain-of-custody record.
6. Include a chain-of-custody record identifying its content in all shipments (refer to Figure 1). The original record will accompany the shipment, and the copies will be retained by the PQAC and, if applicable, distributed to appropriate sample coordinators. Freight bills will also be retained by the PQAC as part of the permanent documentation.

Completing Chain-of-Custody

The following procedure is to be used to fill out the chain-of-custody record.

1. Record project number.
2. Record PQAC for the project.
3. Record the name and address of the laboratory where samples are being shipped.
4. Enter the project name/location.
5. Record overnight courier's air bill number (if shipped overnight).
6. Record sample location number.
7. Record sample number.
8. Note media type (media) and reference number.
9. Note sample type.
10. Enter date of sample collection.

11. Enter time of sample collection in military time.
12. When required, enter the names or initials of the samplers next to the sample location number of the sample they collected.
13. List parameters for analysis and the number of containers submitted for analysis.
14. Sign the chain-of-custody record(s) in the space provided. All samplers must sign each record.
15. If sample tags are used, record the sample tag number in the "Remarks" column.
16. Record date shipped.
17. The originator checks information entered and then signs the form including the current date and time (military).
18. Send the top two copies with the samples to the laboratory; retain the third copy for the project files. Retain additional copies for the project file or distribute as required to the appropriate sample coordinators.
19. The laboratory sample custodian receiving the sample shipment checks the sample label information against the chain-of-custody record. Sample condition is checked and anything unusual is noted under "Remarks" on the chain-of-custody record. The laboratory custodian receiving custody signs in the adjacent "Received" on the chain-of-custody record. The laboratory custodian receiving custody signs the chain-of-custody form and keeps the copy.

Custody Seals

Custody seals must be placed on the shipping containers (e.g., picnic cooler) prior to shipment. The seal should be signed and dated by a field team member.

Sample Shipping

See the packaging and shipping of environmental samples procedures PSES-Libby-01.

Appendix 5
Packaging and Shipping of Environmental Sample Procedure (PSESP-Libby-01)

Date: March 22, 2004 Procedure No. PSES-Libby-01

Site: Flyway Site
Libby, Montana

Packaging and Shipping of Environmental Samples

This procedure applies to the packaging and shipping of all environmental samples (soil samples and air samples) specific to the SAP. No chemicals will be shipped with any of the soil samples.

Responsibilities

The Project Quality Assurance Coordinator (PQAC), is responsible for ensuring that packaging and sampling procedures are conducted in accordance with this procedure.

Required Equipment

- Coolers with return address
- Plastic Ziploc®-type bags, small and large
- Clear tape
- Duct tape
- Large heavy-duty plastic garbage bag
- Bubble wrap
- Custody seals
- Completed chain-of-custody record
- Completed bill of lading, if applicable
- "This End Up" and directional arrow labels

Procedures

The following steps must be followed when packaging samples.

1. Select a sturdy cooler in good repair.
2. Make sure that all the sample bags are secured.
3. Place the completed chain-of-custody record for the laboratory into a plastic zip-top bag, tape the bag to the inner side of the cooler lid, and close the cooler.
4. The cooler lid shall be secured with duct tape (or other similar type tape) by wrapping each end of the cooler a minimum of two times. Attach a completed chain-of-custody seal across the hinges of the cooler on opposite sides. The custody seals should be affixed to the cooler with half of the seal on the strapping

tape so that the cooler cannot be opened without breaking the seal. Complete two more wraps around with clear tape over the custody seals.

5. The shipping container lid must be marked "THIS END UP" and arrow labels that indicate the proper upward position of the container should be affixed to the cooler. A label containing the name and address of the shipper shall be placed on the outside of the container. The name and address of the laboratory shall be placed on the container, or when shipped by common courier, the bill of lading shall be completed and attached to the lid of the shipping container.

Appendix 6
Field Logbook Content and Control Information Procedure (FLCCIP-Libby-01)

Date: March 22, 2004 Procedure No. FLBC-Libby-01

Site: Flyway Site
Libby, Montana

Field Logbook Content

A field logbook will be kept to document field sampling work efforts conducted at the Flyway Site.

1. Field logbooks will be bound with lined, consecutively numbered pages. All pages will be numbered prior to initial use of the log book. Prior to use in the field, each logbook will be marked with a specific document control number issued by the project quality assurance coordinator.

2. The following information will be recorded on the cover of the logbook.

    a. Field logbook document control number.
    b. Activity (if the logbook is to be activity-specific) and location.
    c. Start date.

3. Operation

    The following is a list of requirements that must be followed when using a logbook:

    a. Record work, observations, quantities of materials, calculations, drawings, and related information directly in the logbook.
    b. Do not start a new page until the previous one is full or has been marked with a single diagonal line so that additional entries cannot be made.
    c. Do not erase or blot out any entry at any time. Indicate any deletion by a single line through the material to be deleted. Initial and date each deletion.
    d. Do not remove any pages from the logbook.

    Specific requirements for field logbook entries include:

    a. Initial and date each page.
    b. Sign and date the final page of entries for each day.
    c. Initial and date all changes.

d. A new author must sign and print his/her name before additional entries are made.
e. Draw a diagonal line through the remainder of the final page at the end of each day.
f. Record the following information on a daily basis:

- Date and time;
- Name of individual making entry;
- Names of field team and other persons on site;
- Description of activity being conducted including station or location (i.e., soil sample location, etc.);
- Weather conditions (i.e., temperature, etc.);
- Level of personal protection to be used;
- Serial numbers of instruments;
- Required calibration information; and
- Serial/tracking numbers on documentation (e.g., carrier air bills).

g. At each station where a sample is collected or an observation or measurement made, a detailed description of the location of the station is required. A GPS location should be included for each sample location. All maps or sketches made in the logbook should have descriptions of the features shown.

h. Other events and observations that should be recorded include:

- Changes in weather that impact field activities;
- Deviations from procedures outlined in any governing documents. Also record the reason for any noted deviation;
- Problems, downtime, or delays; and
- Upgrade or downgrade of personal protection equipment.

4. Post-Operation

To guard against loss of data due to damage or disappearance of logbooks, completed pages shall be periodically photocopied (weekly, at a minimum) and forwarded to the field or project office.

At the conclusion of each activity or phase of site work, the individual responsible for the logbook will ensure that all entries have been appropriately signed and dated, and that corrections were made properly. The completed logbook shall be submitted to the field office.

5. Restrictions/Limitations

Field logbooks constitute the official record of onsite technical work, investigations, and data collection activities. Their use, control, and ownership are restricted to activities pertaining to specific field operations carried out by Remedium Group, Inc. (a subsidiary of W.G. Grace & Co.) and their subcontractors. They are documents that may be used in court to indicate dates, personnel, procedures, and techniques employed during site activities. Entries made in these notebooks should be factual, clear, precise, and non-subjective. Field logbooks, and entries within, are not to be utilized for personal use.

Appendix 7
Photograph Documentation of Field Activities Procedure
(PDFAP-Libby-01)

Date: March 22, 2004 Procedure No. PDFAP-Libby-01

Site: Flyway Site
Libby, Montana

Photographic Documentation of Field Activities Procedure (PDFAP)

Photograph recordings made during field investigations are used as an aid in documenting and describing site features, sample collection activities, and equipment used.

The project quality assurance coordinator is responsible for ensuring that the format and content of photographic documentation are in accordance with this procedure.

The photographer shall seek direction from the project quality assurance coordinator and discuss the visual documentation requirements and schedule. The photographer is responsible for maintaining a logbook.

Required Equipment

- 35 mm camera, disposable single use camera (35mm or panoramic use) or digital camera
- Logbook
- Indelible black or blue ink pen
- Standard reference markers
- Medium speed, or multi purpose fine-grain, color, 35 mm film or storage medium for digital camera

Documentation

- A commercially available, bound logbook will be used to log and document photographic activities.

Operation

- The photographer should be prepared to make a variety of shots, from close-up to wide-angle.
- All still film photographs should be made using a medium speed, multi purpose fine-grain, color negative film in 35 mm format.
- No preference of digital storage medium is specified and is left to the discretion of the photographer.

Slate Information

- When directed by the project quality assurance coordinator, each new roll of film or digital storage medium shall contain upon the first usable frame (for film) a slate with consecutively assigned control numbers.

Caption Information

- All still photographs will have a full caption permanently attached to the back or permanently attached to a photo log sheet. The caption should contain the following information.

  - Film roll control number(if required) and photograph sequence number
  - Date and time
  - Description of activity/item shown
  - Direction (if applicable)
  - Photographer

  Digital media should be downloaded at least once each day.

Close-up and Feature Photography

When directed by the Project Quality Assurance Coordinator, close-up photographs should include a standard reference marker of appropriate size as an indication of the feature size and contain a slate marked with the site name and identifying label, such as a soil sample number, that clearly communicates to the viewer the specific feature being photographed.

Site Photography

Site photography, in general, will consist predominately of medium and wide-angle shots. A standard reference marker should be placed adjacent to the feature or, when this is not possible, within the same focal plane.

Panoramic

In situations where a wide-angle lens does not provide sufficient subject detail, a single use disposable panoramic camera is recommended.

Photographic Documentation

Photographic activities must be documented in a photographic logbook or in a section of the field logbook. The photographer will be responsible for making proper entries.

The following information should be maintained in the appropriate logbook:

- Photographer name;
- If required, an entry shall be made for each new roll/tape control cumber assigned;
- Sequential tracking number for each photograph taken (for digital cameras, the camera generated number may be used);
- Date and time (military time);
- Location;
- A description of the activity/item photographed;
- If needed, a description of the general setup, including approximate distance between the camera and the subject, may be recorded in the logbook;
- Record as much other information as possible to assist in the identification of the photographic document.

Post Operation

All film will be sent for development and printing to a photographic laboratory (to be determined by the photographer). The photographer will be responsible for arranging transport of the film from the field to the photographic laboratory. The photographer shall also be arranging delivery of the negatives and photographs, or digital storage medium to the project management representative.

Documentation

At the end of each day's photographic session, the photographer(s) will ensure that the appropriate logbook has been completely filled out and maintained.

Photographs and the associated set of negatives, digital media, and original unedited documentary videotape recording will be submitted to the project files and handled according to contact records requirements.

Completed pages of the appropriate logbook will be copied weekly and submitted to the project files

Appendix 8
Field Equipment Decontamination Procedure (FEDP-Libby-01)

Date: March 22, 2004 Procedure No. FEDP-Libby-01

Site: Flyway Site
Libby, Montana

Field Equipment Decontamination Procedure (FEDP)

The following procedure applies to the field sampling devise decontamination procedure for the Flyway Site. A trowel or appropriate sampling devise will be decontaminated before soil samples are collected. The following decontamination procedure is listed below.

1. Remove all gross contamination with a plastic brush.
2. Use clean water and a plastic brush to wash each piece of equipment.
3. Remove excess water present on the equipment by shaking.
4. Use a paper towel to dry each piece of equipment.
5. Wrap dried equipment in aluminum foil.
6. Once a week all soil sampling equipment will be cleaned using Alconox and clean water.

Spent gloves, and PPE must be properly disposed.

If disposable sampling devises are used, this decontamination procedure will not apply.